Modern Simple Mathematics

PART - IV

By
Council for Preparation Of Textbooks

Translated By
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FOREWORD

The books are frequently revised and updated to meet the challenges of the fast changing world in the fields of science and technology , new developments in the methodology of teaching and growing needs of the students to understand the subject through simple, lucid and illustrative method.

The book in your hands i.e. Modern Simple Mathematics is the part of our plan to revise all our textbooks.

The thoughts and views which have a direct influence on the lives of the students and are associated with the real purpose of their lives have been given due importance and consideration in the preparation of this book.

Keeping in mind the general and prevailing perception among the students, the parents and of course the teachers that Mathematics is a dull and boring subject, we have designed this book so as to allay such Maths phobia among these people. Moreover, efforts have been made to clear each and every point by profusely illustrating the book with sufficient solved examples, graphics and instructions for teachers wherever necessary The exercises have been designed to relate them with the day-to-day needs of the students.

We acknowledge all those whose kind cooperation, guidance and assistance have culminated in the production of this book.

Suggestions and comments are highly appreciated and will be thankfully acknowledged.

New Delhi
25.12.2011

Mohd. Ashfaque Ahmed
(Incharge)

TEACHING MATHEMATICS

The need and utility of Mathematics in our day-to-day life is universally acknowledged. No one can eventually do without the basic concept of Mathematics - whatsoever profession one is in.Everyone has to deal, more or less, with personal and family budget,marketing, mutual give-and-take, measurement, Zakat and Ushr inheritance and other obligations. That is why the practice of teaching basic Mathematics to little children from the very beginning has been in vogue for centuries. And in this age of science and technology this need has assumed much more importance. Inventions, industries and scientific developments in the various fields have left an abiding influence on the very course of our life. Whether it is industry or handloom, business or agriculture, science or technology, the knowledge of Mathematics is required at every step. Thus for the success of life it is essential that every pupil is taught Mathematics up to the secondary level.

Not only to meet practical needs of life, the knowledge of basic concepts of Mathematics is necessary to gain mastery over dif ferent subjects, to study science and social sciences and even the books of language, and to understand them quite well.

Children do require the knowledge of counting, addition, subtraction and other details of weighing and measurement in doing work at home and school, in knowing the quantity and number , shape and size of things, in business transactions, in games and sports and in satisfying their curiosity at every step in their day-to-day life. For the fulfilment of this need it is necessary to teach them Mathematics. This is the most important subject next only to the basic knowledge of Islam and the mother tongue. Thus it should be given special attention accordingly.

The real purpose of teaching Mathematics at the elementary level is to gradually develop so much awareness in children that they may solve mathematical problems in their day-to-day life, ascertain the quantity and number as well as shape and size of the things they come across, handle business transactions, have suficient knowledge of weighing and measurement as well as time and distance, and make further study in Mathematics. To achieve this purpose it is inevitable to teach Mathematics at the elementary level.

(Late) Afzal Hussain, M.A.; L.T

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CHAPTER 1

REVISION

1. Read and write the following numbers in words:

(i) 795 (ii) 19720 (iii) 15043 (iv) 13005 (v) 10201

2. Write the Place Value of each digit in the following numbers:

(i) 2537 (ii) 47521 (iii) 18305 (iv) 15037 (v) 10201

3. Solve the following with the help of Table:

(i) 9 x 8 = ☐ (ii) 9 x 7 = ☐ (iii) 8 x 7 = ☐

(iv) 11 x 7 = ☐ (v) 13 x 5 = ☐ (vi) 15 x 6 = ☐

(vii) 12 x 4 = ☐ (viii) 14 x 7 = ☐ (ix) 15 x 10 = ☐

(x) 14 x 5 = ☐

4. Multiply and find the Product:

(i) 79 x 43 (ii) 312 x 52 (iii) 85 x 17 (iv) 705 x 37

(v) 49 x 32 10 (vi) 7 x 8 x 13 (vii) 507 x 11 (viii) 999 x 15

5. A library has 18 almirahs in which there are 350 books in each. Find the total number of books.

6. A bag contains 50 kg of sugar. How much sugar will be there in 525 such bags?

7. Divide and write quotient and remainder:

(I) 753 ÷ 4 (ii) 432 ÷ 12 (iii) 560 ÷ 11 (iv) 756 ÷ 13

(v) 1421 ÷ 14 (vi) 702 ÷ 10 (vii) 999 ÷ 9 (viii) 120 ÷ 4

8. A man got 615 rupees for 15 days wages. What is his daily wages?

9. The cost of 14 chairs is Rs. 1,120. Find the cost of one chair?

10. A milkman gave equal amount of milk to a hotel for a week. If he gave a total of 105 litre milk, how much milk did he give daily?`

CHAPTER 2

Reading and writing 6-digit to 9-digit numbers

In the Final Examination of class 3rd, how many marks did you obtain? If one of your friends secured 340 marks, then in Mathematical language it will be called a 3-digit number

Exercise 2.1(A)

1. Four students Jameel, Abdur Rahim, Anand and Nadeem secured 321, 349, 354 and 295 marks respectively. Find total of their marks. *If your answer is 1319, it is correct.*

2. How many digits are there in 1319?

3. What is the smallest 4-digit number?

4. What is the biggest 5-digit number?

5. Write in words (a) 88029 (b) 57805

6. Write in numerals (a) Ninety thousand two hundred eighty-nine
(b) Eighteen thousand three

7. Add 1 to 99999. What do you get?
This is one hundred thousand or one lakh.
It is a six-digit number and of course the first and smallest six-digit number.

$$\begin{array}{r} 99,999 \\ 1 \\ \hline 100,000 \end{array}$$

8. Write in numbers and find the sum.
(i) Sixty thousand + forty thousand
(ii) Now observe your sum carefully and find how many thousands are there.
(iii) How many zeroes are right to 1?

Th	H	T	O
100,	0	0	0

9. Which is the smallest six-digit number?

10. Which is the largest six digit number?

11. Add one to 9,99,999

What did you get? It is 10 lakh.

It has 6 zeroes next to 1.

It is a seven-digit number.

$$\begin{array}{r} 9,99,999 \\ +\quad\quad 1 \\ \hline 1000000 \end{array}$$

Alway remember that, greatest 6-digit number is always less than smallest 7-digit number.

Exercise 2.1(B)

1. Write in words:

(a) 1,52,054 (b) 7,05,339 (c) 43,65,422 (d) 61,34,918

2. Write in numerals:

(a) Three lakh forty-three thousand one hundred nine.
(b) Eight lakh eighty-nine thousand two.
(c) Twenty-seven lakh fifty-four thousand two hundred nineteen.
(d) Fifty five lakh sixty-six thousand two hundred two.
(e) Seventy-five lakh five hundred twenty.

(If one hundred contributed one lakh each. How much money is collected. You reply would be one hundred lakh or 100,00,000. It has 7 zeroes to the right of 1. It is an eight-digit number. It is also called one crore.)

$$100,00,000 = 100 \text{ lakh}$$
$$= 10,000 \text{ thousand}$$

3. 1,00,00,000 person travel daily by Indian Railways. Write this figure in words.

4. Write in words:

(a) 5,66,050 (b) 17,00,039 (c) 3,90,739
(d) 10,52,069 (e) 9,85,59,709 (f) 15,72,60,379

5. Write in figures:

(i) Seven crore twenty-seven lakh fifty four thousand two hundred nine
(ii) Fifteen crore forty-two lakh eighty four thousand.
(iii) Seventy-two crore five lakh six thousand thirty-two.
(iv) Eighty-four crore seven thousand two hundred fourteen.
(v) Fifty crore eight thousand nine hundred forty-five.
(vi) Eighty-nine crore sixty-nine lakh fifty-nine thousand nine hundred and one.

6. Fill in the blanks:

Sl.No.	No. of digits	Smallest number	Greatest number
(i)	1	1	9
(ii)	2	10	99
(iii)	3	---------	999
(iv)	4	---------	9,999
(v)	5	10,000	---------
(vi)	6	---------	9,99,999
(vii)	7	10,00,000	99,99,999
(viii)	8	1,00,00,000	---------
(ix)	9	---------	99,99,99,999

7. See the first three numbers carefully and complete the rest:

(i) 4,216, 4,316, 4,416, _____, _____, _____

(ii) 8,307, 8,407, 8,507, _____, _____, _____

(iii) 7,700, 7,600, 7,500, _____, _____, _____

8. See the first two numbers and fill the series:

(i) 6,232, 7,232, _____, _____, _____, _____

(ii) 2,848, 3,848, _____, _____, _____, _____

(iii) 3,105, 4,105, _____, _____, _____, _____

(iv) 6,709, 7,709, _____, _____, _____, _____

(v) 9,107, 8,107, _____, _____, _____, _____

Place Value

You have learnt numbers from 0 to 10 crore. You know that all the numbers are formed by 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

If it is asked what is the value of 9, you say it is 9. The answer is correct. 9 is its Absolute Value.

Now see the following numbers.

(i) 9,512 (ii) 6,923 (iii) 6,892 (iv) 8,619

Do all the 9s have the same value? You have learnt in class 3rd that The Value of a digit depends upon its Place in the number .

In 9,512 the Place Value of 9 is 9 0 0 0

6,923 → 9 0 0

6892 → 9 0

8,619 → 9

These Values of 9 are called its Place Values.

Thus,

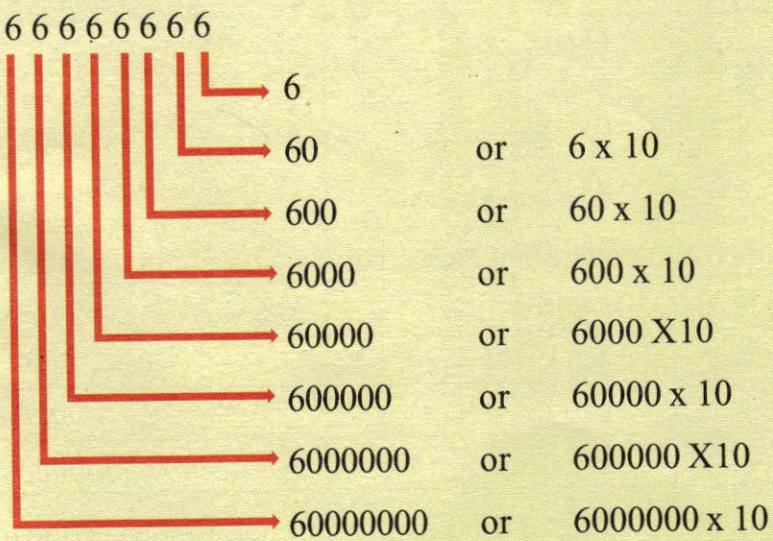
A digit has two values - (i) Absolute Value, which never changes and (ii) Place Value which changes with change in Place of the digit.

Example 1: Find the Place Value of every 6 in 6,66,66,666

Solution: See, in this number 6 has different values by virtue of its place.

The	6 at	Ones place	has place value		6
	,,	Tens	,,	,,	6 0
	,,	Hundreds	,,	,,	6 0 0
	,,	Thousands	,,	,,	6, 0 0 0
	,,	Ten thousands	,,	,,	6 0, 0 0 0
	,,	Lakhs	,,	,,	6, 0 0, 0 0 0
	,,	Ten lakhs	,,	,,	6 0, 0 0, 0 0 0
	,,	Crores	,,	,,	6, 0 0, 0 0, 0 0 0
	or original number				6, 6 6, 6 6, 6 6 6

You see as 6 moves towards left its value increases 10 times



Example 2: Find the Place Value of every digit in 645872.

Solution:

	Lakh	Ten Thousand	Thousand	Hundreds	Tens	Ones
	6	4	5	8	7	2
	6	0	0	0	0	0
		4	0	0	0	0
			5	0	0	0
				8	0	0
					7	0
						2
Place Values →	6,00,000	40,000	5,000	800	70	2

Example 3: Find the Place Value of each digit in 14,56,83,792.

Solution:

Digit	Place	Place Value
2	Ones	2
9	Tens	90
7	Hundred	700
3	Thousands	3,000
8	Ten Thousands	80,000
6	Lakhs	6,00,000
5	Ten Lakhs	50,00,000
4	Crore	4,00,00,000
1	Ten Crore	10,00,00,000

Note: To find the Place Value of digit in any number, first write the digit, then put as many zeroes to its right, as there are digits to its right in the given number.

Exercise 2.2

1. Find the Place Value of the underlined digits:

   (a) 6<u>3</u>,24,097 (b) <u>3</u>7,48,091 (c) 65,91,01<u>3</u>

2. Find the Place Value of 8 in the following numbers:

   (a) 7,63,51,983 (b) 71,96,58,930 (c) 77,88, 34, 419

   (d) 80,05,11, 212 (e) 6,54,32,158

3. How many zeroes should be written to the right of 5 to make its value one lakh times.

Example: Make a table of Place Value for digit 9 and write the following number in that table: 92, 68, 72, 915

Table of Place Value (INDIAN SYSTEM)

Crores		Lakh		Thousands		UNITS		
Tens	Ones	Tens	Ones	Tens	Ones	H	T	O
9	2	6	8	7	2	9	1	5

92 Crore 68 Lakh 72 Thousand 915

The number is read in groups as

92 crore, 68 lakh, 72 thousand, 915.

You have seen that when we write large numbers we often put commas between each group, thus

92, 68, 72,915

Modern trend is not to put commas but leave a blank space -

92 68 72 915

Exercise 2.3

1. Make a table of 7 digit showing periods and write the following number in the table: 45 42 361

2. India's population according to religion as per 2001 census is given as under-

(a) Muslims	13,81,88,240	(b) Christians	2,40,80,016
(c) Sikhs	1,92,15,730	(d) Budhists	79,55,207
(e) Jains	42,25,053		

What is the place value of 2 in all the above figures.

3. Write population of the religious groups given in the Question No.2 in words.

4. Find the Place Value of 1, 3, 7 and 8 in the following:

(a) 3,14,752 (b) 53,49,812 (c) 5,81,768 (d) 3,54,32,180

5. What is the Place Values of 8 in 8,76, 985.

6. What is the Place Values of 3 in 62,32,84,318. Find the difference in Place values of the two 3s in the number.

7. In 753154 how many times is the 5 on thousands place than the 5 on tens place.

8. Compare the numbers and put > or < in the square.

First one is done for you.

(i) 520 [>] 421 (ii) 639 [ ] 569 (iii) 732 [ ] 723

(iv) 989 [ ] 1009 (v) 15,455 [ ] 14,359

(vi) 55,679 [ ] 88,969 (vii) 1,59,630 [ ] 1,49,791

(viii) 9, 72,753 [ ] 12,13,401

Ascending & Descending Order

Example: Areas of different Indian states are given in the following chart:

States	**Area Sq.Km**
U.P.	2, 40, 928
Bihar	94, 163
J & K	2, 22, 236
M.P.	3, 08, 245
Maharashtra	3, 07, 713

Arrange them according to ascending & descending order of area.

Solution: Descending Order -

(i) M.P. → 3, 08, 245

(ii) Maharshtra → 3, 07, 713

(iii) U.P. → 2, 40, 928

(iv) J & K → 2, 22, 236

(v) Bihar → 94, 163

Ascending order-

(i) Bihar → 94, 163

(ii) J.& K → 2, 22, 236

(iii) U.P. → 2, 40, 928

(iv) Maharashtra → 3, 07, 713

(v) M. P. → 3, 08, 245

Method:

Look, First note down all the numbers at Lakh's place, these are

3 2 0 2 3

Now arrange them in Descending Order 3 3 2 2 0

Now arrange them in Ascending Order 0 2 2 3 3

Keeping in view these numbers at Lakh's place. The given numbers are arranged, thus -

3,08,245	3,07,713	2,40,928	2,22,236	94,163
94,163	2,22,236	2,40,928	3,07,713	3,08,245

Compare the numbers first by the digit at lakh's place, arrange them. If the digits at lakh's place is the same, compare next number on the right i.e. ten thousands digit and so on.

Example: Which number is bigger?

2,22,21(6) or 2,22,21(7)

Same

Digit from Lakh to Tens are the same 22 22 1, the digit at Ones is different 7>6, so 22 22 17 > 22 22 16

Exercise 2.4

1. If places of 5 and 6 are exchanged in 2,57,864 what will be the difference in the two numbers.
   Tick mark the correct option.
   (a) The number will increase (b) The number will decrease
   (c) The number will remain the same (no change).
   Similary answer the following.
2. In 34,931 places of 1 and 4 is exchanged.
3. In 56,346 places of first and second 6 are changed.
4. One zero is added to the right of 5,783. What will be change in the value of 3.
5. Will the number increase or decrease if
   (a) In 7,64,802 zero is written in place of 6.
   (b) 3 is written in place of zero.
6. Arrange the population as per 2011 Census, of different states in Descending order.

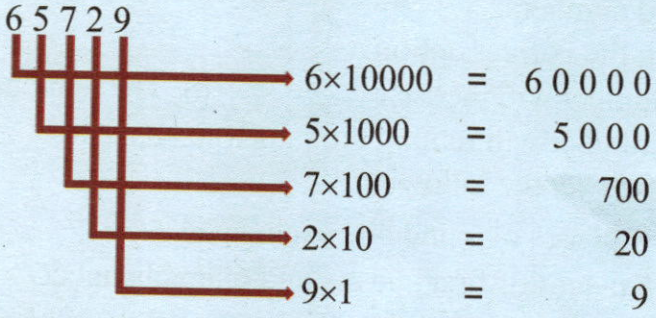
Andhra Pradesh	8, 46, 65, 533
Bihar	10, 38, 04, 637
Tamil Nadu	7, 21, 38, 958
Karnataka	6, 11, 30, 704
Uttar Pradesh	19, 95, 81, 520
Punjab	2, 77, 04, 236
J & K	1, 25, 48, 926
Kerala	3, 33, 87, 677

7. Arrange Muslims population of different states according to 2001 Census in increasing order.

State	Population	State	Population
A.P.	69, 86, 856	Asam	82, 40, 611
Bihar	1, 37, 22, 048	Gujarat	45, 92, 854
J & K	67, 93, 240	U.P.	3, 07, 40, 158
W. Bengal	2, 02, 40, 543	Maharashtra	1, 02, 70, 485

Writing in Expanded Form

Example 1 : Write in expanded form: 65,729



$= (6\times10{,}000) + (5\times1000) + (7\times100) + (2\times10) + (9\times1)$

So, Expanded Form of 65729 = (60000 + 5000 + 700 + 20 + 9)

Example 2: Write in standard form:

70000 + 2000 + 700 + 50 + 9

Answer = 72759

Start writing from Highest, then add in the end

7 0, 0 0 0
2, 0 0 0
7 0 0
5 0
\+ 9

So, standard or compact from = 72 759

7 2, 7 5 9

Note: (1) If we express a given number as the sum of its place values, it is called the expanded from.

(2) The sum of place values of all digits is known as the standard or compact form of.the number

Exercise 2.5

1. Fill in the blanks in the following expanded from:

(i) 68, 439 = ☐ + 8,000 + ☐ + 30 + ☐

(ii) 57, 759 = 50,000 + ☐ + ☐ + ☐ + 9

(iii) 89, 996 = ☐ + 9,000 + 900 + ☐ + ☐

(iv) 96, 979 = ☐ + ☐ + ☐ + ☐ + ☐

2. Write in expanded form:

(i) 42,087 (ii) 39,969 (iii) 27,589

3. Write in standard form:

(i) 80000 + 2000 + 600 + 40 +7 = ☐

(ii) (10,000×2) + (1000×5) + (100×9) + (10×9) + (1×9) = ☐

(iii) (10000×3) + (1000×4) + (100×8) + (10×9) + (1×1) = ☐

International Place Value System

You have already learnt, about Indian Place -Value Chart. In Internation Place Value system, we use "Million" to read digits.

100 Thousand = 1 Lakh

10 Lakh = 1 Million

100 Lakh = 10 Million

or 1 Crore = 10 Million

Let us see, how we read a numeral in International Pleace Value system, with an example-

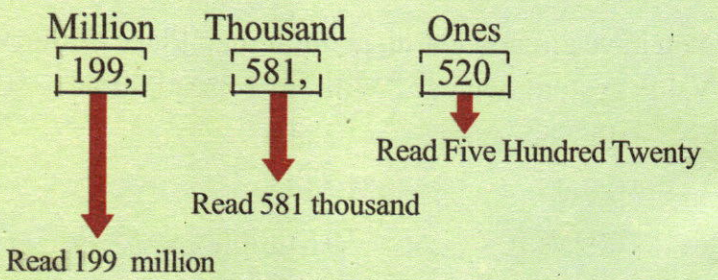
Example : According to Census 201 1, the population of UP is 19, 95, 81, 520. Read and write this numeral according to International Place Value system.

Solution: In Indian Place Value system, you write this numeral as follows:

Crore	Lakh	Thousand	Ones
19	95	81	520

Your read it as -
Nineteen Crore, Ninty Five Lakh, Eighty One Thousand, Five Hundred Twenty.
Now, In International Place Value chart, you write above numeral as under:

Million			Thousand			Ones		
Hundred Million 100,000,000	Ten Million 10,000,000	One Million 1,000,000	Hundred Thoudsands 100,000	Ten Thousands 10,000	Thousands 1,000	Hundreds 100	Tens 10	Ones 1
1	9	9	5	8	1	5	2	0



This will be read as 199 Million, 581 Thousand, 520

OR

One Hundred Ninety Nine Million, Five Hundred Eighty One Thousands and Five Hundred Twenty.
This population will be written as : 199, 581, 520

Note: International System is also called SI in short.

Exercise 2.6

1. Write the population of various states according to Census 2011 given in the chart in words in International system.

Example: Madhya Pradesh 72, 597, 565 (Seventy Two Million, Five Hundred Ninty Seven Thousand, Five Hundred Sixty Five)

(i) Haryana 25, 353, 081 (ii) Orissa 41, 947, 358

(iii) Punjab 27,704, 236 (iv) Rajasthan 68, 621, 012

(v) West Bengal 91, 347, 736

Regional and Roman Numbers

You have learnt numbers from 1 to 10 crore. These numbers are formed by 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Numbers 1 to 9 have been invented by Arabs and 0 by Indian. Therefore, these numerals are called HINDU-ARABIC NUMERALS.

See Numerals in different regional languages.

	0	1	2	3	4	5	6	7	8	9
Hindu Arabic →	0	1	2	3	4	5	6	7	8	9
Hindi (DevNagri) →	०	१	२	३	४	५	६	७	८	९
Uriya →	୦	୧	୨	୩	୪	୫	୬	୭	୮	୯
Gujarati →	૦	૧	૨	૩	૪	૫	૬	૭	૮	૯
Kannad →	೦	೧	೨	೩	೪	೫	೬	೭	೮	೯
Bengali →	০	১	২	৩	৪	৫	৬	৭	৮	৯
Marathi →	०	१	२	३	४	५	६	७	८	९
Gur Mukhi (Panjabi) →	੦	੧	੨	੩	੪	੫	੬	੭	੮	੯
Urdu →	۰	۱	۲	۳	۴	۵	۶	۷	۸	۹
Telgo →	౦	౧	౨	౩	౪	౫	౬	౭	౮	౯
Tamil →	௦	௧	௨	௩	௪	௫	௬	௭	௮	௯
Asami →	০	১	২	৩	৪	৫	৬	৭	৮	৯

Roman Numerals

There are only 7 Roman Numerals represented by seven different letters I, V, X, L, C, D and M. All the numbers can be written using these numerals.

Roman	I	V	X	L	C	D	M
Hindu Arabic	1	5	10	50	100	500	1000

Roman Number 1 to 50

Hindu-Arabic	Roman	Hindu-Arabic	Roman
1	I	21	XXI
2	II	22	XXII
3	III	23	XXIII
4	IV	24	XXIV
5	V	25	XXV
6	VI	26	XXVI
7	VII	27	XXVII
8	VIII	28	XXVIII
9	IX	29	XXIX
10	X	30	XXX
11	XI	31	XXXI
12	XII	32	XXXII
13	XIII	33	XXXIII
14	XIV	34	XXXIV
15	XV	35	XXXV
16	XVI	36	XXXVI
17	XVII	37	XXXVII
18	XVIII	38	XXXVIII
19	XIX	39	XXXIX
20	XX	40	XL

41	XLI	46	XLVI
42	XLII	47	XLVII
43	XLIII	48	XLVIII
44	XLIV	49	XLIX
45	XLV	50	L

Rules for writing and reading Roman Numbers

Rule 1: If in a Roman number any numeral is repeated, its value is obtained by Multiplying the value of the symbol.

e.g. III = 1 x 3 = 3 ; XX = 10 x 2 = 20

Note: No numeral is repeated more than 3 times

As 40 = XL [and not XXXX (10x4 = 40)]

Rule 2: A small numeral written to the right of a big numeral increases its value.

as VI = 5 + 1 = 6
VII = 5 + (1x2) = 7
VIII = 5 + (1x3) = 8

XV = 10 + 5 = 15
XIX = 10 + 9 = 19

Rule 3: The small numeral on left side decreases the value of the large numeral to its right as --

4 = IV → 5 – 1 = 4
9 = IX → 10 – 1 = 9
40 = XL → 50 – 10 = 40

Note: V is never subtracted from any number, so it is never written to the lelft of a big numeral.

Exercise 2.7

1. Write the following in Hindu-Arabic Numerals.

(a) IV (b) VIII (c) IX (d) X (e) XIII (f) XV
(g) XXV (h) XXX (i) XXXIX (j) XLV (k) C (l) LX
(m) XL (n) L

2. Match the Hindu-Arabic Numerals with Roman Numerals

Column 1	Column 2
7	XXV
9	XXXVII
25	XLI
37	IX
18	LII
41	XVIII
52	VII

3. Write in Roman Numerals - 4, 8, 11, 14, 19, 27, 35, 46, 50

4. Write in Hindu-Arabic Numerals:

V, IX, X, XV, XX, XXIV, XXXIX, XL, XLIV, XLVIII

CHAPTER 3

ADDITION

Revision: 1. Find the sum

(i)	13065 +11754 +42506	(ii)	83540 +10405 +01503	(iii)	62375 +30208 +18824

2. There are 12,725 orange trees, 10,243 mango trees and 450 pomegranate trees in an orchard. Find the total number of trees in the orchard.

In class 3rd you have learnt addition of 5-digit numbers. You also know how to carry if sum of any place is more than 9.

Example: carry → 0 1 1 1 1 1

TL	L	T th	Th	H	T	O
1	2	3	5	4	1	2
+ 2	4	7	3	5	8	9
+ 2	1	6	7	4	3	5
+ 5	8	7	6	4	3	6

Exercise 3.1

1. Find the sum: (i) 1513575 + 1017231 + 0907537

(ii) 2318705 + 1709850 + 1007053

(iii) 1317805 + 1410675 + 1712783

(iv) 1703650 + 913573 + 100902

(v) Fill in the blanks:

$$\begin{array}{r} \square\,3\;8\;\square\,6\;5\;7 \\ +\;4\;\square\,3\;4\;\square\,3\;\square \\ +\;7\;2\;\square\,6\;8\;\square\,4 \\ \hline 1\;7\;4\;0\;5\;7\;4\;5 \end{array}$$

Example:

	2	-	1	1	1	2	-	1	← Carry
	TC	C	TL	L	Th	Th	H	T	O
	2	5	2	3	1	5	7	5	6
+	0	8	2	7	2	7	6	0	5
+	1	7	3	4	9	1	7	1	3
	5	0	8	5	3	5	0	7	4

Exercise 3.2

1. In the Holy Qur'an some letters when counted gave the following results.

Jeem comes	→	48,872 times
Yaa comes	→	45,919 times
Wa'o comes	→	25,536 times
'Ra' comes	→	11,792 times

Find the sum of these letters of Arabic Alphabet occurring in the Holy Qur'an.

2. Find the sum

(i)
$$\begin{array}{r} 2\,3,1\,7,1\,3,8\,7\,3 \\ 1\,5,7\,2,3\,1,3\,8\,7 \\ 1\,1,2\,1,2\,3,4\,7\,5 \\ \hline \end{array}$$

(ii)
$$\begin{array}{r} 1\,9,2\,1,3\,1,3\,7\,8 \\ 0\,1,1\,2,2\,2,4\,6\,5 \\ 2\,7,1\,3,2\,1,5\,6\,3 \\ \hline \end{array}$$

3. 13,27,35,401 + 17,10,21,205 + 32,25,35,607

4. 31,72,53,104 + 71,01,12,502 + 32+52,53,706

5. In a bank Rs. 17,13,387 was deposited on Monday, Rs. 12,23,565 on Tuesday and Rs. 25,53,707 on Thursday. Find the total money deposited in these three days.

6. According to 2011 Census, the population of some states is as under.

S.N.	States	Population
1.	U.P.	19, 95, 81, 520
2.	A.P.	8, 46, 65, 533
3.	Bihar	10, 38, 04, 637

Find the total population of these three states.

7. If Karnataka Express travelled 52,32,51,675 Km, Kashi Vishwnath Express 32,52,15,675km and Goa Express 13,25,03,507 km in a year. How much did all these trains travel together?

8. If 25,27,835 persons performed Hajj in 2005, 35,72,933 persons in 2006 and 23,73,805 persons in 2007. How many persons in all performed Hajj in these three years.

CHAPTER 4

SUBTRACTION

You have already learnt subtraction involving 5-digit numbers. The same method is used for higher (larger) numbers. *[No matter how many digits does a number have, the process or method of subtraction is the same.]*

Solve: **(1)** 27,32,576 − 13,10,432 = ☐ **(2)** 25,17,507 − 13,15,507 = ☐

Example: Subtract 2,74,668 from 5,43,521.

Solution:

	~~4~~	~~13~~	~~12~~	~~14~~	~~11~~	~~11~~
	L	T.th	Th	H	T	O
	5	4	3	5	2	1
−	2	7	4	6	6	8
	2	6	8	8	5	3

Exercise 4.1

Subtract:

1. 17,93,21,578 − 1,39,12,765 = ☐

2. 71,54,10,105 − 17,45,01,501 = ☐

3. 37,12,17,575 − 1,30,21,745 = ☐

4. 85,37,10,763 − 15,07,01,367 = ☐

5. Total number of boys and girls apearing in class 4th examination was 12,17,19,465. If the number of boys was 60712335, find the number of girls.

6. 62,12,875 watches were manufactured in a factory in 2002 but 26,21,578 less watches were manufactured in 2003 due to strike of workers in the factory. Find the number of watches manufactured in 2003.

Example:

Rashid had in his account Rs. 15,763. Some days later he deposited Rs. 10,555. After a month he withdrew Rs. 17,265. How much amount is now in his account?

Rashid had	Rs. 15,763	in the account
He deposited	Rs. 10,555	in the account +
Now he has	Rs. 26,318	in the account
But he withdrew	Rs. 17,265	from the account −
Balance in the account	Rs. 09,053	

Exercise 4.2

1. In a factory 30,703 scooters were manufactured in January and 28,605 scooters in Fabruary. Out of these 25,965 scooters were sold in March. How many scooters are there in the factory now?

2. Population of a state in 1981 was 31,13,810. In 1991 9,12,210 persons were added to it. But in the same year a powerful earthquake killed 15,955 people. What is the population of the state now?

3. Solve: (A) $1437675 + 1273755 - 1819675$

   (B) $1539576 - 1312105 + 1201356$

4. Mohan made a journey of 31,435 Km. Out of this he travelled 22,368 km. by train, 8,797 Km by bus and rest on foot. How long did he travel on foot?

5. If in a city 21,19,625 people travel by train and 30,91,537 persons by bus. How many more persons travel by bus than by train?

6. According to 2011 Census the number of literate persons in India is 77,84,54,120. In 2001 it was only 56,20,10,743. How much did the number increase in these ten years?

7. According to 2011 census the population of Bihar is 10, 38,04, 637 and of Uttar Pradesh 19, 95, 81, 520. Which state has more population and by how much?

8. In 2011 Census the number of literate men was 44, 42, 03, 762 and of women 33, 42, 50, 358. How many less women were literate than men?

9. According to 2011 Census the population of U.P. is 19,95,81,520. Out of this 10,45,96,415 were men and rest women. Find the number of women?

CHAPTER 5

TABLES

You know if we add the same number again and again we get its Table as –

4 + 4	=	8		4 x 2	=	8
4 + 4 + 4	=	12	O	4 x 3	=	12
4 + 4 + 4 + 4	=	16	R	4 x 4	=	16
4 + 4 + 4 + 4 + 4	=	20		4 x 5	=	20

and so on

You also know how to make table by multiplying by 1,2,3, 4, ... till 10. Following is the table of multiplication up to 15.Complete the table by filling blank squares.

x	6	7	8	9	10	11	12	13	14	15
1	6			9						
2	12									
3	18	21			30			39		
4	24		32				48			
5	30	35							70	
6	36			54						90
7	42					77				
8	48									
9	54		72		90					135
10	60									

Table of 16 and 17 by Multiplication Method:

16 × 1	=	16
16 × 2	=	32
16 × 3	=	48
16 × 4	=	64
16 × 5	=	80
16 × 6	=	96
16 × 7	=	112
16 × 8	=	128
16 × 9	=	144
16 × 10	=	160

17 × 1	=	17
17 × 2	=	34
17 × 3	=	51
17 × 4	=	68
17 × 5	=	85
17 × 6	=	102
17 × 7	=	119
17 × 8	=	136
17 × 9	=	153
17 × 10	=	170

You can prepare table of 18, 19 and 20 in your notebook. You can make table of any number you desire.

Learn table up to 20 orally.

Exercise 5

1. Solve with the help of table.

If in a P.T. drill 16 students are standing in each row–

(i) How many students are in 6 rows

(ii) in 4 rows

(iii) in 9 rows.

2. Find the cost of 10 stamps of 20p each.

3. If 8 stamps of 20 paise each were purchased and Rs.2 was given to the clerk. How much will the clerk return?

4. 10 girls have 18 bangles each. How many bangles do they have in all?

5. Hamida recites 17 verses of Holy Qur'an daily. How many verses will she recite in a week?

6. A slate costs Rs 19. Find the cost of 9 such slates?

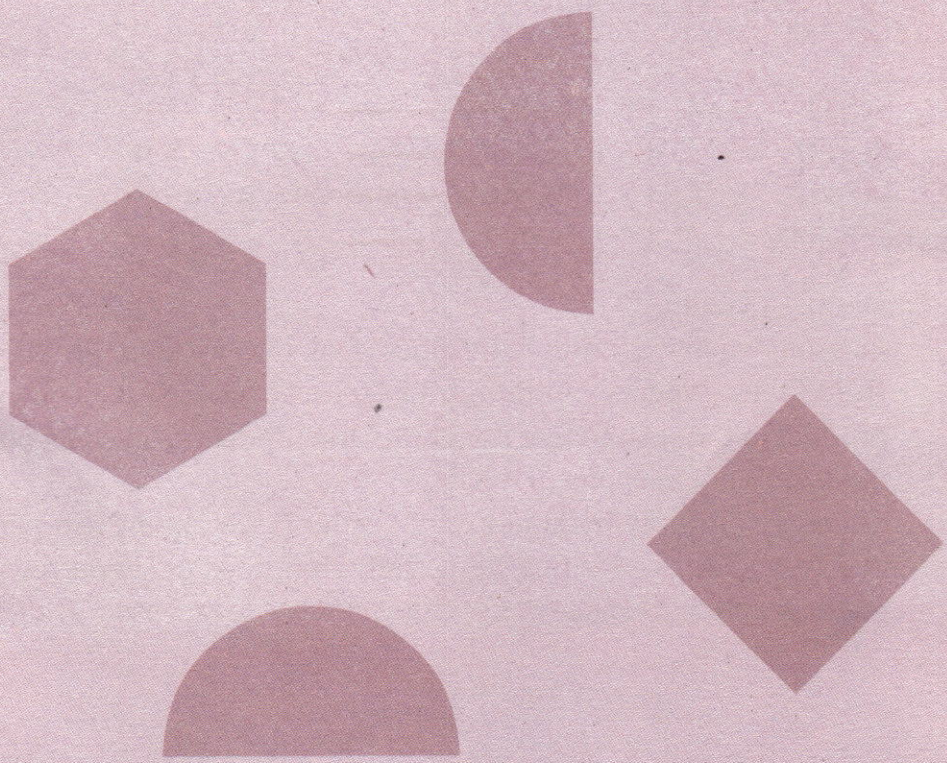
7. Fill in the blanks:–

(i) $16 \times 5 =$ ☐ (ii) $17 \times 9 =$ ☐ (iii) $19 \times$ ☐ $= 57$

(iv) $18 \times 4 =$ ☐ (v) $16 \times 7 =$ ☐ (vi) $17 \times 5 =$ ☐

(vii) $20 \times$ ☐ $= 160$ (viii) $19 \times 6 =$ ☐ (ix) ☐ $\times 9 = 180$

(x) $18 \times 7 =$ ☐ (xi) $20 \times 4 =$ ☐ (xii) ☐ $\times 3 = 60$



CHAPTER 6

MULTIPLICATION

You have already studied multiplication of 3-digit numbers by 2-digit numbers. Let us revise.

1. Find the product:

A. (i) 76 x 10 (ii) 53 x 40 (iii) 215 x 35

B. Solve the following:

1. A bus carries 55 passengers in one trip. How many passengers will it carry in 24 trips?
2. If a necklace is made with 80 pearls, how many pearls will be needed to make 53 necklaces?

Multiplying by a 3-digit number

Example: Multiply 24516 by 435

See $435 = 400 + 30 + 5$

		24516
		×435
Step I	(24516 x 5) →	122580
Step II	(24516 x 30) →	+735480
Step III	(24516 x 400) →	+9806400
Finally Step IV	(24516 x 435) →	10664460

Explanation:- (Method)

As usual when we multiply by Ones (5 of 435) we start writing product from Ones, when we multiply by Tens (3 of 435) we start writing product in the second line under the first product from Tens place and put a zero at Ones place.

When we multiply by Hundreds (4 of 435) we put the product under 2nd row and start writing digit from Hundreds place putting zeroes at Ones and Tens places.

24516	
×435	
122580	(multiply by 5)
735480	(multiply by 3 Tens)
+9806400	(multiply by 4 hundreds)
Answer 10664460	

Exercise 6

1. Solve:

A. 5848 x 172	**B.** 15634 x 267
C. 16529 x 398	**D.** 274935 x 146

2. Find the product:

(a) 215 x 16 x 24	**(b)** 467 x 539 x 87
(c) 540 x 29 x 125	**(d)** 208 x 416 x 134

3. Solve the following:

(i) 175 *l* Kerosine oil is filled in a drum. How much oil will be filled in 2,486 drums.

(ii) A bicycle costs Rs. 2,855. Find the cost of 468 bicycles.

(iii) One sack of wheat contains 96 Kg wheat. If in a godown there are 54,792 such sacks. How much wheat is there in the godown?

(iv) A flight of Indian Airlines can carry 250 passengers. If the fare for Chennai from Delhi is Rs. 3,775, how much did the Airline get from these passengers?

(v) A Computer costs Rs. 42,355. A company manufactured and sold 328 computers in January. How much did the company earn from the sale of all these computers?

(vi) Rajiv filled 98 Kg of grain in every bag. If he filled 465 such bags, how much grain did he fill in all?

(vii) On a National Highway 5,897 vehicles pass daily. How many vehicles will pass in a year of 365 days?

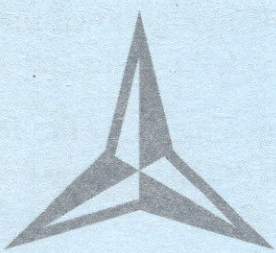
(viii) The cost of a Tape Recorder is Rs. 1,285. A firm sold 768 Tape recorders in a year. How much did the firm earn by the sale of these Tape recorders?

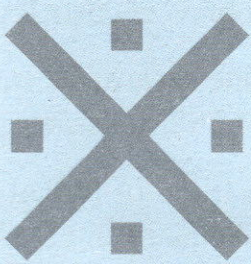
(ix) A factory produces 7,650 bags of sugar daily. How much sugar will be produced in a year if only 295 days were working days of the company?

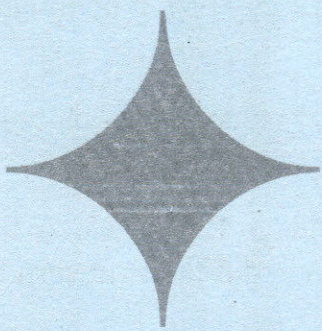
(x) 375 persons contributed Rs. 5,798 each towards the construction of a mosque. How much money was collected from them?

(xi) There are 1,176 pages in a copy of Talkhees Tafheemul Qur'an. How many pages will be there in 989 such copies?

(xii) An employee of a company gets Rs. 4,875 a month in salary. If there are 850 such employees in the company, how much salary is given every month by the company?







CHAPTER 7

DIVISION

In the previous class you have learnt division

49 ← Quotient

divisor → 5)245 ← dividend

1. Divide and tell quotient and remainder:

(i) $312 \div 14$ (ii) $786 \div 12$ (iii) $735 \div 14$

(iv) $905 \div 15$ (v) $614 \div 3$

2. Solve the following questions:

(i) A merchant purchased 1440 apples from an orchard in Simla and packed them in 15 cartons. Find out how many apples did he keep in each carton?

(ii) 800 students of a school were to be taken on a picnic in mini buses. If 20 students can go in a mini bus, how many mini buses will be required to carry them?

Division by 10, 100 and 1000

Division by 10

(A) $682 \div 10$

$$\begin{array}{r} 68 \\ 10\overline{)682} \\ -60 \\ \hline 82 \\ -80 \\ \hline 2 \end{array}$$ remainder

(b) $45 \div 10$

$$\begin{array}{r} 4 \\ 10\overline{)45} \\ -40 \\ \hline 5 \end{array}$$

Look at the above examples. It is evident that when we divide a number by 10, the remainder is always the number at One's place (2 of 682 and 5 of 45) and the rest of the digits come as quotient.

Exercise 7.1

1. Solve:

S. No.	Division	Quotient	Remainder
(i)	$84 \div 10$	8	4
(ii)	$90 \div 10$	9	☐
(iii)	$375 \div 10$	37	☐
(iv)	$95 \div 10$	9	☐
(v)	$238 \div 10$	☐	☐
(vi)	$37 \div$ ☐	3	7

Division by 100

Example: (i) $438 \div 100$

$$\begin{array}{r} 4 \leftarrow Q \\ 100\overline{)438} \\ -400 \\ \hline 38 \leftarrow R \end{array}$$

(ii) $5786 \div 100$

$$\begin{array}{r} 57 \leftarrow Q \\ 100\overline{)5786} \\ -500 \\ \hline 786 \\ -700 \\ \hline 86 \leftarrow R \end{array}$$

By observing the above examples you notice that when we divide by 100, the remainder is always Ones & Tens digit (38 and 86 in the above examples) and remaining digit comes as quotient.

Division by 1000

Example: $53700 \div 1000$

$$\begin{array}{r} 53 \leftarrow Q \\ 1000\overline{)53700} \\ -5000 \\ \hline 3700 \\ -3000 \\ \hline 700 \leftarrow R \end{array}$$

Similarly, when we divide by 1000, the remainder is composed of Ones, Tens and Hundreds digit and remaining digits form quotient.

See the following chart:

Question Division	Quotient	Remainder
347 ÷ 10	34	7
3625 ÷ 1000	3	625
2261 ÷ 1000	2	261
24579 ÷ 1000	24	579
9367 ÷ 100	93	67
3000 ÷ 10	300	0

Exercise 7.2

1. Without actual division, tell the quotient and the remainder

(i) 15 ÷ 10 (ii) 274 ÷ 100 (iii) 7894 ÷ 100

(iv) 6025 ÷ 1000 (v) 693 ÷ 100 (vi) 98 ÷ 10

2. Tell the remainder in the following:

(i) 78 ÷ 10 (ii) 240 ÷ 100

(iii) 1995 ÷ 1000 (iv) 5134 ÷ 100

Division by two-digit numbers

(With the help of Table and without the help of Table)

Divide 3876 by 16

This division has been done with the help of Table of 16, since you have learnt table upto 20.

$$\begin{array}{r} 242 \\ 16\overline{)\,3876} \\ -32 \\ \hline 067 \\ -64 \\ \hline 036 \\ -32 \\ \hline 04 \end{array}$$

Q=242; R=4

Example: $478 \div 35$

Explanation: Since you do not know the Table of 35, you have to make its Table as and when required.

Step 1: To divide 478 by 35 consider two digits from left:
(Since there are 2 digits in the divisor)
Since $47 > 35$ we can divide it by 35
$35 \times 1 = 35$
$35 \times 2 = 70$

$$\begin{array}{r} 1 \\ 35\overline{)\,478} \\ -35 \\ \hline 128 \end{array}$$

Since 35×2 is more than 47 (the dividend) we take quotient as 1 and divide 47.

Step 2: Upon subtracting and bringing 8, we get 128 to be divided by 35. Now we guess table of 35.

$35 \times 1 = 35$
$35 \times 2 = 70$
$35 \times 3 = 105$
$35 \times 4 = 140$

Since $35 \times 3 = 105$ is less than 128, and $35 \times 4 = 140$ ($140 > 128$) the obvious quotient is 3. Putting 3 as quotient and completing the process of division, we get 23 as remainder (Since $23 < 35$) division appears to be correct.

$$\begin{array}{r} 13 \\ 35\overline{)478} \\ -35 \\ \hline 128 \\ -105 \\ \hline 23 \end{array}$$

Exercise 7.3

1. Divide:

(i) $535 \div 14$ (ii) $4981 \div 16$ (iii) $9843 \div 18$

(iv) $6197 \div 19$ (v) $1342 \div 20$ (vi) $8655 \div 17$

(vii) $47145 \div 16$ (viii) $784180 \div 16$ (ix) $854630 \div 15$

2. Divide:

(i) $8422 \div 23$ (ii) $5856 \div 47$ (iii) $9035 \div 54$

(iv) $5373 \div 35$ (v) $82540 \div 30$ (vi) $88637 \div 36$

3. There are 583 pages in the Tafheemul Qur'an Volum 5. If Sa'ad studies 11 pages daily, in how many days will he finish this book?

4. 765 trees were planted in 17 rows. If the number of trees in each row was equal, find the number of trees in each row.

5. There are 20 books in each bookshelf of Maktaba. If there are 3,295 books, how many shelves will be required and how many books will remain?

6. Rs. 3,375 was granted for purchasing educational charts for class IV. If a chart costs Rs.45, how many charts can be purchased?

7. A man contributed Rs.11,250 towards the cost of Hindi Translation of the Holy Qur'an for free distribution. If one Hindi Translation costs Rs.90, how many Hindi Translations can be distributed?

8. Rs. 5,43,945 of Relief Fund was distributed equally among 85 affected families. How much did each family get and how much will remain?

CHAPTER 8

MIXED OPERATION

You have already learnt the four operations *viz*. addition, subtraction, multiplication and division.
Solve the following questions:

$15 + 3 =$ ☐ $\quad 24 - 8 =$ ☐ $\quad 4 \times 7 =$ ☐

$18 \div 3 =$ ☐

Operation of only addition, subtraction or multiplication and division among more than two numbers:

Example 1. Solve $5 + 3 + 9 =$ ☐

Solution: There are 3 numbers which are to be added. You cannot add all these in one go. First you have to add any two numbers then add the third number in the sum of the two numbers, thus

$5 + 3 = 8 \qquad 8 + 9 = 17$

or $3 + 9 = 12 \qquad 5 + 12 = 17$

$5 + 12 = 17$

$5 + 3 + 9 = 17$

$8 + 9 = 17$

By convention we start operation from left so

$5 + 3 = 8 \qquad 8 + 9 = 17$

$5 + 3 + 9 = 17$ is the correct way.

8

Example 2. $15 - 4 + 3 =$?

Solution :- In this example, first we add 15 and 3. Thereafter 4 will be subtracted from 18. So, we get 14 as answer.

$15 - 4 + 3 = 15 + 3 - 4$

$= 18 - 4$

$= 14$

Example 3. $3 \times 8 \div 4$

Solution: Here, first we divide and then multiply.

$$3 \times 8 \div 4 = 3 \times \underline{8 \div 4}$$
$$= 3 \times 2$$
$$= 6$$

- If we have a problem involving addition and subtraction only, then first we add positive & negative numbers seperately and then subtract these two results.
- If we have a problem involving multiplication and division only, then first we divide and after that multiply the quotient to the number remains.

Exercise 8.1

1. Solve the following:

(i) $8 + 5 - 9$ (ii) $25 + 5 + 12$ (iii) $28 - 6 + 3$

(iv) $62 - 9 - 7$ (v) $21 + 3 - 18$

2. Solve these:

(i) $4 \times 3 \times 2$ (ii) $8 \times 20 \div 5$ (iii) $35 \div 7 \times 3$

(iv) $60 \div 5 \div 6$ (v) $105 \div 15 \times 5$

Operation of addition, subtraction, multiplication and division among more than two numbers.

Example 1. *Solve.* $4 \times 6 + 2$

Solution:

$$= \underline{4 \times 6} + 2$$
$$= \underline{24 + 2}$$
$$= 26$$

First we mutiply 4 and 6, obtained 24 as product. Now add 24 to 2, and get the result 26.

Example 2: $15 + 3 \times 4 = \boxed{?}$

Solution:

$$= 15 + \underbrace{3 \times 4}$$

$$= \underbrace{15 + 12}$$

$$= 27$$

In this example, first we find the product of 3 & 4 and then add the product to 15. Thus we obtained the answer 27.

If we have a problem involving all the four operations (Addition, Subtraction, Multiplication & Division), then we perform the operations in the following order:

Division → Multiplication → Addition → Subtraction.

We can remember it as 'DMAS' in short

Exercise 8.2

Solve the following:

1. $36 + 4 \times 2$	**2.** $28 + 12 \div 3$	**3.** $48 \div 6 + 8$
4. $50 + 9 \times 5$	**5.** $55 - 7 \times 4$	**6.** $8 \times 8 - 8$
7. $35 \div 7 - 2$	**8.** $12 - 63 \div 9$	**9.** $14 \times 6 \div 3 + 16$
10. $92 - 2 \times 5 + 4$	**11.** $71 - 26 \div 13 - 9$	**12.** $60 \div 15 + 9 - 6$

Use of bracket:

You know that, in mixed operation problems, first we do division or multiplication, then addition or subtraction.

Sometimes we use brackets to specify our operations, e. g.

$5 + 3 \times 9$ and $(5 + 3) \times 9$

have two different solutions.

(i) By Rule

$$5 + \underbrace{3 \times 9}$$
$$= \underbrace{5 + 27}$$
$$= 32$$

(ii) By Using Brackets

$$\underbrace{(5 + 3)} \times 9$$
$$= \underbrace{8 \times 9}$$
$$= 72$$

In above example (i) you observe that, first perform multiplication between 3 & 9 and then add the product 27 to 5. Thus we get the answer 32.

In above example (ii), you observe that, first we operate brackets by addition of 5 & 3 and then 8 multiply by 9. Thus we get the answer 72.

Statement problems:

Example: Majid gave Shameem Rs.8. His father gave him 3 more rupees. Shameem bought toffees for 2 rupees. How many rupees are now with Shameem?

Solution: First you need to write the problem in mathematical language.
Majid gave Shameem Rs. 8
His father gave him Rs. 3 or ⟶ $8 + 3$
Shameem bought tofees for Rs. 2 or ⟶ $8 + 3 - 2$
Now solve this $= \underbrace{8 + 3} - 2$
$= \underbrace{11 - 2}$
$= 9$ Ans = 9 rupees

Exercise 8.3

1. Solve the following:

(i) $(8-2)\times 5$ **(ii)** $42 \div (3\times 2)$ **(iii)** $(25+7)\div 8$

(iv) $35\times(4+1)$ **(v)** $(8\times 4)\div 16$ **(vi)** $20-(5\times 3)$

(vii) $75\div(5\times 5)$ **(viii)** $12\times(50\div 10)$

2. Aqeel's father gave him 10 rupees and his brother gave him 13 rupees. He purchased sweets for Rs. 6. How much money does Aqeel now have?

3. For the construction of a mosque 15 coupons of 50 rupees each were sold and a man donated Rs. 200 alone. How much money was collected in all?

4. Ahsan bought 25 baskets of pineapple each containing 12 of which he sold 270 pineapples. How many are left unsold?

5. Ahmad bought 20 watches at the rate of 35 rupees each. He bought some other goods for Rs. 300. How much did he spend in all?

6. Wages of a man for one day is Rs. 175. What will be the total amount of his wages for 31 days. If 5000 rupees of his son's salary is also added to it, what will be the total amount? If the man spends Rs. 8000 from it, how much is left now?

7. A publisher reserved Rs. 75000 for postage. If its daily expense on postage was Rs. 2250, how much postage was spent in September and how much amount will remain, when there were 4 holidays and no postage was spent in holidays?

CHAPTER 9

CURRENCY, MEASURES AND THEIR INTERCONVERSION

Conversion of currency 1 Rupee = 100 Paise

Example: Salima got 10 rupees on Eid. She bought toys for 9 rupees and 50 paise. How much paise does she now have?

Solution: I Method : First convert rupees into paise

10 rupees = 10 × 100

= 1000 paise

Similarly 9 rupees = 9 × 100

= 900 paise

9 rupees 50 paise = 900 paise + 50 paise

= 950 paise

Now, she have = 1000 – 950

= 50 p

II Method : You have learnt addition and subtraction of rupees & paise in class 3rd, so you can also solve this question as under:

	Rs.	p
(Salima had)	10	00
(Salima spent)	–09	50
(Now she have)	00	50

or 50 p

Changing of one unit into another is called interconversion.

To change a big unit into a smaller one, we multiply by a certain number. This number is called conversion factor.

e.g. 1Re = 1 × 100 p

(100 is the conversion factor for changing rupees into paise)

To change a small unit into a big one, we divide by the same number (as we did to change the big unit into a smaller one).

200 P = 200 ÷ 100 = 2 Rupees

You see that conversion factor, here too, is 100.

Exercise 9.1

[1] Change into paise:

(i) 5 rupees 75 Paise = _____ Paise

(ii) 8 rupees 25 Paise = _____ Paise

(iii) 12 rupees 50 Paise = _____ Paise

(iv) 6 rupees 50 Paise = _____ Paise

(v) 15 rupees 75 Paise = _____ Paise

(vi) 17 rupees 25 Paise = _____ Paise

[2] If 15 rupees is divided equally among 4 children, how much paise will each child get? [Hint: First change Rupees into paise, then divide]

[3] 6 children paid Rs. 72 Paise 60 as the bus fare to the zoo. How much did each child pay?

Interconversion of Unit/Measures of Mass

You know the unit of mass is Kg, Gram is smaller than the Kilogram.

1 Kilogram (Kg) = 1000 gram (g)

1 Kg = 1000g

To change Kg into g we multiply Kg by 1000

e.g. 5 Kg = 5 × 1000 g = 5,000 g

7 Kg = 7 × 1000 g = 7,000 g

10 Kg = 10 × 1000 g = 10,000 g

Example: 8 Kg 500 g sugar was purchased from a shop and 7 Kg 600g sugar was consumed. How much sugar is left now?

Solution:

Method I : Since there are two different units (kg and g)

Step (i): First we shall change them into one unit for the sake of convenience. (We change big units into the smaller one) So,

8 Kg = 8 × 1000 g = 8,000 g

8 Kg 500 g = 8000 + 500 = 8,500 g

Setp (ii): Similarly,

7 Kg 600 g = 7000 g + 600 g = 7,600 g

Now we subtract 8500 – 7600 = 900 g

So, 900 g sugar is left Answer

Metho II : We can also solve this question as under.

7	1500
Kg	g
8	500
7	600
0	900

or 0 Kg 900 g

Explanation:

Since 600 > 500 it is not possible to take away 600 from 500 So we borrow 1 Kg (or 1000 g) from the neighbourhood. Now 1000 + 500 = 1500, 1500 > 600. So 600 g can be subtracted from 1500.

1500 – 600 900. Only 7 Kg is left which is subtracted from 7 Kg (7–7=0)

So another answer is 0 Kg 900 g sugar left.

Exercise 9.2

[1] Change into g and write against each.

(i) 5 Kg 300 g = _____ g

(ii) 6 Kg 500 g = _____ g

(iii) 12 Kg 200 g = _____ g

(iv) 15 Kg 100 g = _____ g

[2] 5 Kg sweets was distributed equally among 20 children. How much sweets did each child get?

[3] How many bangles of 10 g each can be prepared from half a Kilogram silver?

Interconversion of Units of length

1 metre = 100 centimetre

or 1m = 100 cm

1 centimetr = 10 millimetre

or 1cm = 10 mm

Statement Problems

Example 1. If 1 cm 5 mm long pieces are cut from a 6 cm long strip of silver, how many pieces will be made?

Solution:

Length of strip = 6 cm.
= 6 × 10 mm.
= 60 mm.

length of one piece = 1 cm 5 mm
= 10 mm + 5 mm
= 15 mm

So, No. of pieces = 60 ÷ 15
= 4 pieces

$$15\overline{)60}\ 4,\quad -60,\quad 00$$

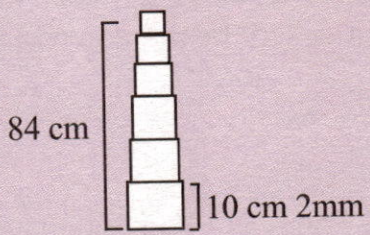
Oral:

1. Change into mm

(i) 4 cm 7 mm **(ii)** 8 cm 4 mm

(iii) 13 cm 9 mm **(iv)** 15 cm 3 mm

2. An 84 cm high tower was made by putting some colour boxes one upon another. If the height of every box is 10 cm 2 mm, how many boxes were used to make the colum (tower).



Exercise 9.3

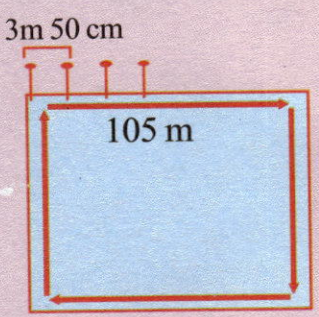
1. Change into cm

(i) 5 m 60 cm **(ii)** 7 m 50 cm

(iii) 13 m 40 cm **(iv)** 17 m 63 cm

2. If 2m 25 cm cloth is needed for a shirt, how many such shirts will be made in 9 m cloth?

3. Perimeter of a garden is 105 m. If poles are erected at every 3 m 50 cm, how many poles will be required (perimeter is a new word and should be explained by the teacher giving pictorial presentation).



Exercise 9.4

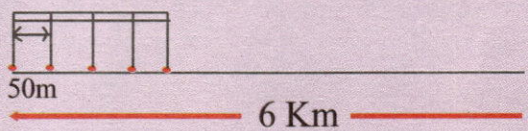
Learn → 1 Km = 1000 m

1. Fill in the blanks (Change in meters)

(i) 8 Km 700m = ——— m. **(iii)** 6 Km 750 m = ——— m

(ii) 5 Km 300m = ——— m. **(iv)** 9 Km 225 m = ——— m

2. If the distance between any two electric poles is 50m, how many poles will be there in 6 km?



3. A bridge is 1 Km 560 m long. At every 40 m there is an elctric lamp. How many lamps are there on the bridge?

4. If a man covered 460 m distance in one round of a ground. Then how much distance will it cover in 8 rounds?

5. How many rounds will a wheel of cycle make in travelling 2 km if it travells one m in one round?

Interconversion of Units of Volume (Capacity)

1 litre = 1000 millilitre

or 1 *l* = 1000 *ml*

Exercise 9.5

1. Fill in the blanks:

(a) 2 *l* 500 *ml* = _____ *ml*

(b) 5 *l* 800 *ml* = _____ *ml*

(c) 9 *l* 25 *ml* = _____ *ml*

(d) 13 *l* 650 *ml* = _____ *ml*

2. If the capacity of a bowl is 100 *ml*, then find the number of such bowls to fill 500 *ml* of milk?

3. The capacity of a bottle is 200 *ml*. How much *ml*. Oil can be filled in such 2 dozen bottles?

Miscellaneous

1. Fill in the blanks:

(i) 8 rupees 75 paise = _____ Paise

(ii) 5 Km 450 m = _____ m

(iii) 3 cm 7 mm = _____ mm

(iv) 5 m 75 cm = _____ cm

(v) 8 *l* 225 *ml* = _____ ml

(vi) 12 Kg 275 g = _____ g

2. Mohan bought 5 m long cloth for Rs. 75. Find:

(A) How many pieces of 50 cm long cloth can be cut from it?

(B) How much will each piece cost?

3. A car consumes 5 *l* of petrol to go 100 *km*. If one litre of petrol costs Rs. 65, how much will it cost to go one Km by this car?

4. How many bangles of 10 g each can be made from 1 Kg of silver? What will each bangle cost if one kg of silver costs Rs. 55000.

Interconversion of units of Time

60 seconds = 1 minute

60 minutes = 1 Hour

Example 1. Add:

Minute	Second
5	30
0	25
+ 3	00
8	55

Example 2. Subtract:

Minute	Second
14	38
–5	00
9	38

Example 3. Add:

Hour	Minute	Second
4	20	05
+ 2	00	24
+ 0	30	26
6	50	55

Example 4. Change 5 minutes 15 seconds into seconds.

Solution:

1 minute = 60 Seconds

5 Minutes = 5×60

= 300 Seconds

5 minutes 15 Seconds = 300 + 15 Seconds

= 315 Seconds

Example 5. Change 4 Hours 15 minutes into minutes

Solution:

1 Hour = 60 minutes

4 Hours = 4×60

= 240 minutes

4 Hours 15 minutes = 240 + 15 minutes

= 255 minutes Answer.

Exercise 9.6

1. Fill in the blanks

(i) 7 min. 20 Sec. = _____ Sec.

(ii) 2 min. 50 Sec. = _____ Sec.

(iii) 3 Hrs 12 min = _____ min.

(iv) 5 Hrs 15 min = _____ min.

(v) 9 min. 25 Sec. = _____ Sec.

(vi) 4 Hrs 25 min = _____ min.

2. Zakir read The Holy Qur'an for 15 min. 5 Sec., did Mathematics for 1 Hour 30 minutes 25 seconds and played for an hour. How much time did he spend in all these activities?

3. Rashid read in a library for 2 Hours 25 min. 45 Sec. and Mahmood read for 1 Hour 20 min. 30 Sec. How more did Rashid read than Mahmood?

Example: A machine makes a toy in one second. How many toys will it make in 8 Hrs. 25 min 20 Sec.

Solution: Since the machine makes 1 toy in 1 second, we must know how many second are there in 8 Hrs. 35Min. 20 Sec.

Look: 1 Hour = 60 minutes

So, 8 Hrs = 8×60

= 480 minutes

8 Hours 35 minutes = 480 + 35 minutes

= 515 minutes

1 minute = 60 Seconds

515 minutes = 515×60

= 30900 Seconds

Now 515 minutes + 20 Seconds = 30900 + 20

= 30920 Second

So the machine will make 30920 toys in 8 Hours 35 minutes 20 seconds.

Answer

In Short 8 Hours 35 minutes 20 seconds = (80 x 60 x 60) + (35 x 60) +20

= (28800 + 2100 +20)

= 30900 + 20

= 30920 Seconds

Exercise 9.7

1. Fill in the blanks:

(i)	4 Hours 30 minutes 20 Seconds	=	_____ Seconds
(ii)	2 Hours 15 minutes 10 Seconds	=	_____ Seconds
(iii)	5 Hours 25 Seconds	=	_____ Seconds
(iv)	45 minutes 45 Seconds	=	_____ Seconds

2. A wheel of a vehicle takes one round in 1 Sec. How many rounds will it make in 7 Hr. 52 min. 15 Sec.

3. A Jet plane takes 10 Hours 30 minutes to reach London from Delhi. Tell it in minutes.

4. A school opens at half past seven and closes at 25 minutes past 12. If 10 minutes are spent in prayer and 15 minutes in interval, tell how many minutes are used in teaching.

5. On 21st June the sun rose at 5:23 in the morning and set at 7:21 in the evening. Tell for how many minutes did the sun shine that day?

24 Hours = 1 Day
7 Days = 1 Week
12 Months = 1 Year

Exercise 9.8

1. Change into Hours:

(i) 8 Days 5 Hours (ii) 4 Days 6 Hours
(iii) 5 Days 5 Hours (iv) 12 Days 7 Hours
(v) 15 Days 8 Hours (vi) 20 Days 10 Hours

2. Find the total Time:

(i) 45 Min. 30 Sec. and 10 Min. 40 Sec.
(ii) 4 Hours 35 min. and 5 Hours 50 Min.
(iii) 4 Days 9 Hours and 6 Days 18 Hours

3. Change into Months:

(i) 12 Years 2 Months (ii) 8 Years 10 Months
(iii) 9 Years 9 Months (iv) 15 Years 8 Months
(v) 13 Years 5 Months (vi) 14 Years 8 Months

Example 1. Change 4 Years 8 Months 10 Days 5 Hours into Hours:

Solution: First Change Years into Months

$$4 \text{ Years} = 4 \times 12 = 48 \text{ Months}$$

$$4 \text{ Years } 8 \text{ Months} = 48 + 8 = 56 \text{ Months}$$

Now change Months into days

$$56 \text{ Months} = 56 \times 30 = 1680 \text{ Days}$$

$$56 \text{ Months } 10 \text{ Days} = 1680 + 10$$

$$= 1690 \text{ Days}$$

Now change Days into Hours

$$= 1690 \text{ Days} = 1690 \times 24 \text{ Hours}$$

$$= 40560 \text{ Hours}$$

$$1690 \text{ Days } 5 \text{ Hours} = 40560 + 5 \text{ Hours}$$

$$= 40565 \text{ Hours} \quad \text{Ans.}$$

In Short:

4 Years 8 Months 10 Days 5 Hours = (4 × 12) + 8 Months + 10 Days + 5 Hours

= 56 Months + 10 Days + 5 Hours

= (56 × 30) + 10 Days + 5 Hours

= 1680 + 10 Days + 5 Hours

= 1690 Days + 5 Hours

= (1690 × 24) + 5 Hours

= 40560 + 5 Hours

= 40565 Hours

4. Fill in the blanks:

(i) 2 Yrs 7 months 4 days = ☐ Hours

(ii) 3 Yrs 4 months 8 days = ☐ days

(iii) 5 Years 5 months 5 days = ☐ days

(iv) 12 Years 8 months 12 days = ☐ days

Example 2. Change 16889 Seconds into Hours, Minutes and Seconds.

Solution: Step 1: First change Seconds into minute

60 Seconds = 1 Minute

$$
\begin{array}{r}
281 \leftarrow \text{Minute} \\
60\overline{)16889} \\
-120 \\
\hline
488 \\
-480 \\
\hline
89 \\
-60 \\
\hline
29 \leftarrow \text{Second}
\end{array}
$$

Step 2. Now you have 281 Minutes and 29 Seconds. Change Minutes into Hours and leave Seconds as it is.

281 Minutes = 281 ÷ 60 Hours

$$
\begin{array}{r}
4 \leftarrow \text{Hours} \\
60\overline{)281} \\
-240 \\
\hline
41 \leftarrow \text{Minutes}
\end{array}
$$

Now you have 4 Hours 41 Minutes 29 Seconds.
that is your Answer

Example 3. Change 3947 Hours into days and Months

Step 1: First change Hours into days:

3947 Hours = 3947 ÷ 24 Days

$$
\begin{array}{r}
164 \leftarrow \text{days} \\
24\overline{)3947} \leftarrow \text{Hours} \\
-24 \\
\hline
154 \\
-144 \\
\hline
107 \\
-96 \\
\hline
11 \leftarrow \text{Hours}
\end{array}
$$

164 Days 11 Hours

Step 2: Now change days into months -

$$
\begin{array}{r}
5 \leftarrow \text{months} \\
30\overline{)164} \leftarrow \text{days} \\
-150 \\
\hline
14 \leftarrow \text{days}
\end{array}
$$

Ans: 3947 Hours = 5 Months, 14 Days and 11 Hours.

Exercise 9.9

1. Change and fill in the blanks:

(i) 180 Seconds = _____ Minutes

(ii) 240 Minutes = _____ Hours

(iii) 14 Days = _____ Weeks

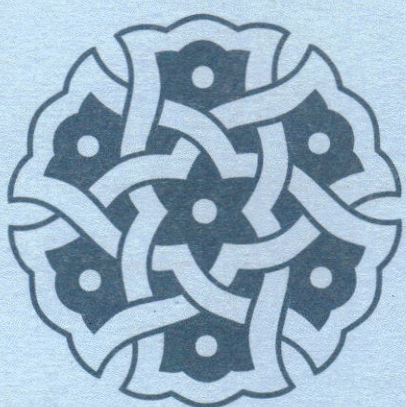
(iv) 360 Days = _____ Months

(v) 48 Hours = _____ Days

(vi) 36 Months = _____ Years

2. Change 12685 seconds into Hours, Minutes and seconds.

3. Change 5408 Hours into Days and Months.



Interconversion of time

(By Multiplication and Division)

Example: In taking one round of a field it takes 1 minute 15 seconds. How much time will it take to complete 50 rounds of the field?

Solution:

Setp 1: First of all change 1 Min 15 Sec. into Sec.

∵ 1 Min = 60 Sec.

So, 1 Min 15 Sec. = 1 × 60 Sec. + 15 Sec.

= 75 Sec.

Setp 2: Since, Time taken in 1 round = 75 Sec.

So, Time taken in 50 round = 75 × 50 Sec.

= 3750 Sec.

Setp 3: Now, Change 3750 Sec into Min as follows-

$$
\begin{array}{r}
62 \quad \leftarrow \text{Min} \\
60\overline{)\,3750} \leftarrow \text{Sec.} \\
-\,360 \\
\hline
150 \\
-\,120 \\
\hline
30 \text{ Sec.}
\end{array}
$$

Setp 4: Now, Change 62 Min into Hour as follows-

$$
\begin{array}{r}
1 \text{ Hr} \\
60\overline{)\,62} \leftarrow \text{Min} \\
-\,60 \\
\hline
2 \text{ Min}
\end{array}
$$

Hence, Time taken in 50 rounds = 01 Hr 02 Min 30 Sec.

Exercise 9.10

1. In copying one page of a book it takes 12 minutes 25 seconds. How long will it take to copy 100 pages of the same book?
2. In drawing one bucket of water from a well it takes 4 minutes 20 seconds. How long will it take to draw 20 buckets of water?
3. A carpenter takes One day 6 Hours 50 minutes to make a door. How long will he take to make 10 such doors?
4. A man goes one kilometre in 20 minutes. How long will it take him to go 10 Km?

Example 1. In taking 2 rounds of a garden Mohan took 4 min. 30 Sec. How long will he take to make one round?

Solution:

Step 1: First of all, change 4 Min 30 Sec, into Sec.

We know that, 1 Min = 60 Sec.

So, 4 Min 30 Sec. $= 4 \times 60$ Sec $+ 30$ Sec.

$= 240$ Sec $+ 30$ Sec

$= 270$ Sec

Therefore, Time taken in 2 rounds = 270 Sec.

Step 2: To Find time taken in 1 round divide 270 Sec. by 2_

$$
\begin{array}{r}
135 \text{ Sec.} \\
2\overline{)270 \text{Sec.}} \\
-2 \\
\hline
7 \\
-6 \\
\hline
10 \\
-10 \\
\hline
00
\end{array}
$$

So, Time taken in 1 round = 135 Sec.

Step 3: Now, Change 135 Sec. into Min by division,

$$\begin{array}{r} 2 \text{ Min.} \\ 60\overline{)135} \leftarrow \text{Sec.} \\ -120 \\ \hline 15 \text{ Sec.} \end{array}$$

Hence, Time taken in 1 round = 2 Min 15 Sec.

Example 2. Amjad reads 2 pages of a book in 6 minutes 36 Seconds. What time will he take to read one page of the same book?

Solution: In reading 2 pages 6 min. 36 Sec.

So, in reading 1 page 6 min. 36 Sec. ÷ 2

$$\begin{array}{rr} \text{min.} & \text{sec.} \\ 3 & 18 \\ 2\overline{)6} & 36 \\ -6 & \\ \hline 0 & 3 \\ & -2 \\ & \hline & 16 \\ & -16 \\ & \hline & 00 \end{array}$$

Answer: 3 min. 18 sec.

Example 3. A contractor took 3 years 8 months 24 days in making 8 km. long road. How much time will he take to make 1 km. long road?

Solution:

Step 1: First we change the given time 3Yrs. 8 Month 24 days into days as under:

$$\begin{aligned} 3 \text{ Yrs. } 8 \text{ Months } 24 \text{ Days} &= 3 \times 12 \text{ Months} + 8 \text{ Months} + 24 \text{ Days} \\ &= (36 + 8) \text{ Months} + 24 \text{ Days} \\ &= 44 \text{ Months} + 24 \text{ Days} \\ &= (44 \times 30) \text{ Days} + 24 \text{ Days} \\ &= 1320 \text{ Days} + 24 \text{ Days} \\ &= 1344 \text{ Days} \end{aligned}$$

Step 2: Since, 1344 days is taking to make 8 km. long road. So, to find time to make 1 km. long road, divide 1344 by 8,

$$
\begin{array}{r}
168 \text{ Days} \\
8\overline{)1344 \text{ Days}} \\
-8 \\
\hline
54 \\
-48 \\
\hline
64 \\
-64 \\
\hline
00
\end{array}
$$

Therefore, time required to make 1 km. long road = 168 Days.

Step 3: Now, Change 168 Days into Months by division.

$$
\begin{array}{r}
5 \text{ Months} \\
30\overline{)168 \text{ Days}} \\
-150 \\
\hline
18 \text{ Days}
\end{array}
$$

Hence, the required time to make 1 Km. long road
= 5 Months 18 Days.

Exercise 9.11

Divide:

1. 19 months 22 days by 8

2. 8 months 20 days 8 hours by 5

3. 89 years 9 months 15 days by 25

4. A Russian astronaut made 24 rounds of the earth in 4 days 15 hours. How long did he take to make one round of the earth?

5. 26 rolls of cloth are manufactured in a factory in 56 days 8 hours. How long will it take to manufacture one roll of cloth?

6. An athlete runs in a field 1 Hr. 40 Min. daily for the preparation of sports competition. If he completes 248 rounds of field in two months December & January, then find the time required to make one round of the field.

Time Table For Namaz, Sahari & Iftar

You might have seen a chart showing Subh-e-Sadique, begining of Fajr, Sunrise (end of time of Fajr) and Sunset (end of time ofAsr and begining of time of Maghrib)etc. This type of chart is displayed for all 12 months seperately in the mosques.

Here is a chart for the month of January.

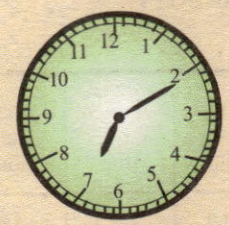
January	Subh-e-Sadique	Sunrise	Sunset	Fajr	Zuhr	Asr	Maghrib	Isha
1	5:49	7:13	5:35	5:52	12:24	3:38	5:38	6:59
2	5:50	7:14	5:36	5:53	12:25	3:59	5:39	"
3	"	"	"	"	"	"	"	7:00
4	5:51	"	5:37	5:54	12:26	4:00	5:40	7:01
5	"	7:15	5:38	"	"	4:01	5:41	"
6	"	"	5:39	5:55	12:27	"	5:42	7:02
7	5:52	"	5:40	"	"	4:02	5:43	7:03
8	"	"	"	"	12:28	4:03	"	7:04
9	"	"	5:41	"	"	4:04	5:44	7:05
10	"	"	"	"	"	4:05	"	"
11	"	"	5:42	"	12:29	"	5:45	7:06
12	"	"	5:43	"	"	4:06	5:46	7:07
13	"	"	5:44	"	12:30	4:07	5:47	"
14	"	"	5:45	"	"	4:08	5:48	7:08
15	"	"	5:45	"	"	4:09	"	7:09
16	"	"	5:46	"	12:31	4:10	5:49	7:10
17	"	"	5:47	"	"	4:11	5:50	7:11
18	"	"	5:48	"	"	4:12	5:51	"
19	"	"	5:49	"	12:32	4:12	5:52	7:12
20	"	7:14	5:50	"	"	4:13	5:53	7:13
21	"	"	5:51	"	"	"	5:54	"
22	"	"	5:52	"	12:33	4:14	5:55	7:14
23	"	"	"	"	"	4:15	"	7:15
24	"	"	5:53	"	"	4:16	5:56	7:16
25	5:51	7:13	5:54	5:54	"	4:17	5:57	"
26	"	"	5:55	"	12:34	4:18	5:58	7:17
27	"	7:12	"	"	"	"	"	"
28	"	"	5:56	"	"	4:19	5:59	7:18
29	"	7:11	5:57	"	"	4:20	6:00	"
30	5:50	"	5:58	5:53	"	4:21	6:01	7:19
31	"	"	5:59	"	"	4:22	6:02	7:20

You can also find a chart with models of clocks that show Jama'at time of different Namaz as 31st January:

5:53

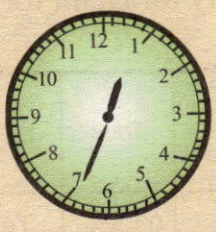
Fajr'

7:11



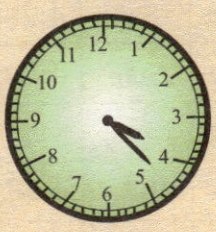
Sun rise

12:34



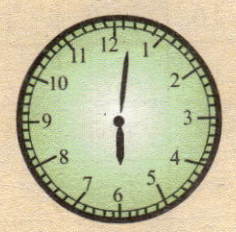
Zuhr

4:22



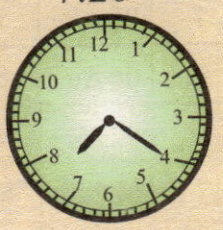
Asr'

6:02



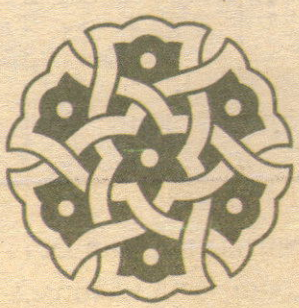
Maghrib

7:20



Isha

The hands of these models of clocks can be adjusted to change the Time of Jama'at throughout the year.



Ramazan Sahar and Iftar chart

Read the following chart. You can find the time of breaking fast, beginning of fast, end of *sahar* etc. in the following chart. This chart is only for Delhi for the year 2011.

Ramazan -ul- Mubarak	Date	Days	End of Sahar	Time of Iftar	Ramazan -ul- Mubarak	Date	Days	End of Sahar	Time of Iftar
1	02 Aug.	Tue.	4:13	7:12	16	17 Aug.	Wed.	4:26	06:59
2	03 Aug.	Wed.	4:14	7:12	17	18 Aug.	Thu.	4:26	06:59
3	04 Aug.	Thu.	4:15	7:11	18	19 Aug.	Fri.	4:27	06:58
4	05 Aug.	Fri.	4:16	7:10	19	20 Aug.	Sat.	4:28	06:57
5	06 Aug.	Sat.	4:17	7:09	20	21Aug.	Sun.	4:29	06:56
6	07 Aug.	Sun.	4:18	7:08	21	22 Aug.	Mon.	4:30	06:55
7	08 Aug.	Mon.	4:19	7:08	22	23 Aug.	Tue.	4:30	06:54
8	09 Aug.	Tue.	4:19	7:07	23	24 Aug.	Wed.	4:31	06:53
9	10 Aug.	Wed.	4:20	7:06	24	25 Aug.	Thu.	4:32	06:52
10	11 Aug.	Thu.	4:21	7:05	25	26 Aug.	Fri	4:33	06:50
11	12 Aug.	Fri	4:22	7:04	26	27 Aug.	Sat.	4:33	06:49
12	13 Aug.	Sat.	4:23	7:03	27	28 Aug.	Sun.	4:34	06:48
13	14 Aug.	Sun.	4:23	7:02	28	29 Aug.	Mon.	4:35	06:47
14	15 Aug.	Mon.	4:24	7:01	29	30 Aug.	Tue	4:35	06:46
15	16 Aug.	Tue	4:25	7:00	30	31 Aug.	Wed.	4:36	06:45

Since, the time of sunrise and sunset is different everywhere. So, the time table for Namaz, sunrise and sunset is prepared seperately for different cities.

CHAPTER 10

SIMPLE FRACTION

In class 3rd you have learnt about fractional number consist of two part - Numerator and Denominator . The total parts of an object represents the denominator and number of paths taken from then represents the numerator. e.g.

Fraction bar → $\frac{2}{5}$ ← Numerateor / Denominator

Hence

$$\text{Fraction} = \frac{\text{Numerator}}{\text{Denominator}} = \frac{\text{No. of Parts Taken /Considered}}{\text{Total Parts}}$$

Addition & Subtraction Of Fractions With Same Denominators

It is easy to add or subtract fractions with same (common) denominators. Simply add or subtract the numerators and write it in the from of new fraction with the same denominator.

Example:

Add $\frac{1}{5} + \frac{3}{5} = \frac{1+3}{5} = \frac{4}{5}$ (add numerators; write Denominator as it is)

Subtract $\frac{4}{5} - \frac{1}{5} = \frac{4-1}{5} = \frac{3}{5}$ (Subtract numerators)

Exercise 10.1

1. Add: (i) $\frac{7}{9} + \frac{1}{9}$ (ii) $\frac{4}{15} + \frac{2}{15}$ (iii) $\frac{12}{20} + \frac{6}{20}$

2. Subtract:

(i) $\frac{8}{18} - \frac{7}{18}$ (ii) $\frac{7}{12} - \frac{4}{12}$ (iii) $\frac{5}{8} - \frac{3}{8}$

Adding and Subtracting fractions with different denominators.

Add:- (i) $\frac{4}{7} + \frac{1}{7}$ (ii) $\frac{3}{9} + \frac{2}{9}$ (iii) $\frac{2}{3} + \frac{1}{4}$

(iv) $\frac{5}{8} - \frac{1}{4}$

You can solve the first two questions easily but the third & fourth questions can not be solved, since they have different denominators. To solve such fractions, first of all change into like fractions (with same denominators) as follows:

- Multiply the numerator & denominator of first fraction by the denominator of second fraction-

i.e. $\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

- Similarly, multiply the numerator & denominator of second fraction by the denominator of first fraction -

i.e. $\frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$

Now, $\frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12} = \frac{8+3}{12} = \frac{11}{12}$

Similarly, In Example (iv)

$$\frac{5}{8} = \frac{5 \times 4}{8 \times 4} = \frac{20}{32}$$

$$\& \quad \frac{1}{4} = \frac{1 \times 8}{4 \times 8} = \frac{8}{32}$$

$$\text{So,} \quad \frac{5}{8} + \frac{1}{4} = \frac{20}{32} - \frac{8}{32}$$

$$= \frac{20 - 8}{32}$$

$$= \frac{12}{32}$$

$$= \frac{3}{8} \quad \text{(By simplification)}$$

- To add or subtract fractions with different denominators, first change them into fractions with same denominators and then perform addition or subtraction.
- Method of changing : Multiply the numerator & denominator of first fraction by the denominator of second fraction. Similarly multiply the numerator & denominator of second fraction by the denominator of first fraction.

Exercise 10.2

1. Add:

(i) $\frac{4}{7} + \frac{2}{5}$ (ii) $\frac{1}{5} + \frac{1}{3}$ (iii) $\frac{5}{9} + \frac{3}{4}$

(iv) $\frac{1}{4} + \frac{3}{10}$ (v) $\frac{7}{8} + \frac{5}{9}$ (vi) $\frac{1}{9} + \frac{3}{8}$

2. Subtract:

(i) $\frac{8}{9} - \frac{3}{5}$ (ii) $\frac{3}{7} - \frac{1}{4}$ (iii) $\frac{5}{7} - \frac{1}{10}$

(iv) $\frac{9}{12} - \frac{2}{3}$ (v) $\frac{3}{8} - \frac{5}{16}$ (vi) $\frac{4}{11} - \frac{2}{15}$

Kinds of Fractional Numbers

Proper Fraction:

Look at the following fractional numbers.

$$\frac{2}{3}, \frac{1}{3}, \frac{5}{7}, \frac{9}{15}, \frac{17}{23}$$

You notice that in all these, $N < D$
these are all proper fraction.

A **Proper Fraction** is one in which Numerator is less than the Denominator.

Improper Fraction:

Now, Notice the fractions $\frac{3}{3}, \frac{4}{4}, \frac{7}{7}, \frac{9}{9}$ etc.

In all these fractions, $N=D$.

Also, Notice the fractions $\frac{4}{3}$, $\frac{12}{5}$, $\frac{35}{9}$, $\frac{13}{10}$ etc.

In all these fractions, N > D,

These are all Improper fractions.

So,

An **IMPROPER FRACTION** is one in which the numerator is greater or equal to the denominator.

Unit Fractions:

Now consider the following fractions -

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$ ——— and so on.

In all these fractions, numerator is 1.

These are all Unit fractions.

So,

The fractions which have 1 as the numerator are called **UNIT FRACTIONS.**

➡ Except $\frac{1}{1}$, which is improper fraction, all unit fractions are proper fractions.

Exercise 10.3

1. Which of these are proper fractions:

(i) $\frac{4}{5}$ (ii) $\frac{3}{9}$ (iii) $\frac{8}{5}$ (iv) $\frac{9}{8}$ (v) $\frac{3}{13}$

2. Which of these are improper fractions:

(i) $\frac{2}{3}$ (ii) $\frac{6}{6}$ (iii) $\frac{13}{3}$ (iv) $\frac{15}{7}$ (v) $\frac{1}{8}$

3. Which of these are Unit Fractions:

(i) $\frac{1}{4}$ (ii) $\frac{1}{8}$ (iii) $\frac{4}{4}$ (iv) $\frac{8}{7}$ (v) $\frac{6}{1}$

4. Write against each fraction P for Proper, I for Improper and U for Unit

(i) $\frac{1}{3}$ = _____

(ii) $\frac{1}{8}$ = _____

(iii) $\frac{7}{9}$ = _____

(iv) $\frac{13}{7}$ = _____

(v) $\frac{99}{100}$ = _____

(vi) $\frac{101}{100}$ = _____

(vii) $\frac{7}{5}$ = _____

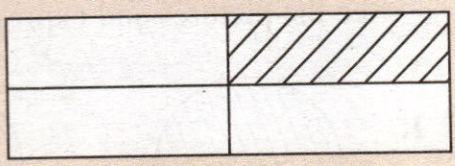
(viii) $\frac{5}{5}$ = _____

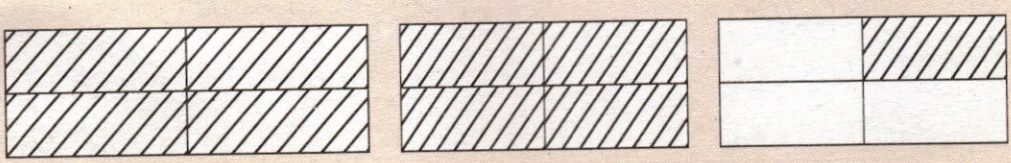
(ix) $\frac{1}{1}$ = _____

(x) $\frac{1}{7}$ = _____

MIXED FRACTIONS

In adjoining figure, the shaded part is written as $\frac{1}{4}$ in fraction form.





In above figure, first two rectangles shaded completely , but the third rectangle shaded $\frac{1}{4}$part. So, The two complete rectangles and $\frac{1}{4}$ th part of third rectangle is written as $2\frac{1}{4}$ in fraction. This type of fraction is called "Mixed Fraction", and it is read as "two whole one upon four" or "two and one-fourth."

If you write a whole number with fractional number , then it is called "Mixed Fraction"

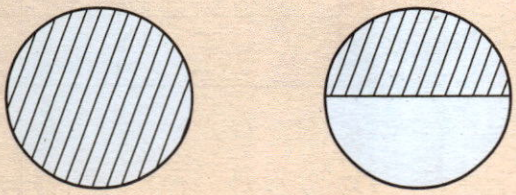
More Examples:

$4\frac{2}{3}$, $1\frac{4}{9}$, $3\frac{5}{7}$ etc.

Exercise 10.4

See the pictures and express shaded parts in fraction.

1.



2.

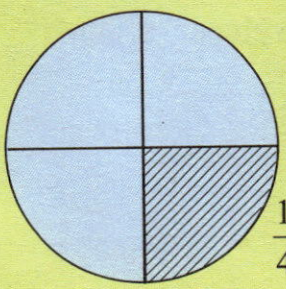
3. Which of these are mixed fractions?

(i) $5\frac{1}{3}$ (ii) $9\frac{2}{3}$ (iii) $\frac{6}{7}$

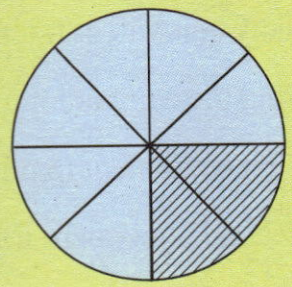
(iv) $3\frac{1}{2}$ (v) $4\frac{2}{3}$

EQUIVALENT FRACTIONS

Look the following pictures carefully:

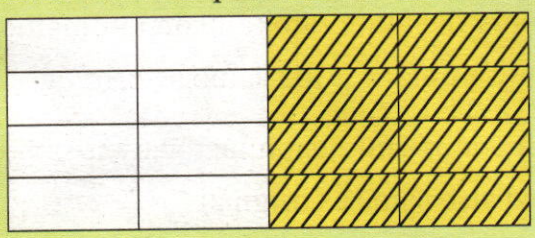


$\frac{1}{4}$

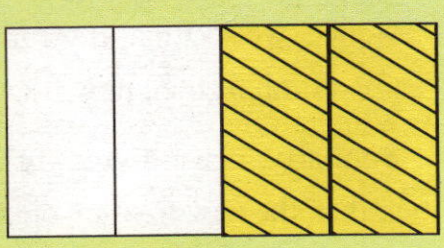


$\frac{2}{8}$

The shaded parts of above two pictures are represented by different factions as $\frac{1}{4}$ and $\frac{2}{8}$. But these two fractions represents the same shaded part.



$\frac{8}{16}$



$\frac{2}{4}$

See, the shaded parts of above pictures. The shaded parts of these two pictures represented by fractions $\frac{2}{4}$ and $\frac{8}{16}$. But the shaded area of both pictures is same.

> The fractions having the same value are called equal or equivalent fractions.

For Example: Equivalent fraction of $\frac{1}{4} = \frac{2}{8}$

Equivalent fraction of $\frac{2}{4} = \frac{8}{16}$

FINDING EQUIVALENT FRACTIONS

We can find many equivalent fractions of a given fraction.

Example: Find the equivalent fractions of $\frac{2}{3}$

First equivalent fraction of $\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$

Second equivalent fraction of $\frac{2}{3} = \frac{2 \times 3}{3 \times 3} = \frac{6}{9}$

Third equivalent fraction of $\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

So, the equivalent fractions of $\frac{2}{3}$ are -

$\frac{4}{6}$, $\frac{6}{9}$, $\frac{8}{12}$, ---------- and so on.

Hence, we see that, if we multiply the numerator and denominator by a same number, then new fraction we obtain is the same as original.

Similarly, if we divide the numerator and denominator by a same number, then the new fraction obtained also same as original.

$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$, $\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$

$\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$ *and* $\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{2}{3}$ and so on.

Thus, we can say that,

> To find the equivalent fractions of a given fraction, multiply or divide the numerator and denominator of fraction by the same number .

Exercise 10.5

1. Write three equivalent fractions for each of the following:

(a) $\frac{1}{5}$, $\frac{2}{10}$, $\frac{3}{15}$, $\frac{4}{20}$

(b) $\frac{1}{3}$,- - - - ,- - - - ,- - - -

(c) $\frac{1}{6}$,- - - - ,- - - - ,- - - -

(d) $\frac{3}{4}$,- - - - ,- - - - ,- - - -

2. Fill in the blanks:

(a) $\frac{3}{5} = \frac{6}{\square}$

(b) $\frac{9}{12} = \frac{3}{\square}$

(c) $\frac{1}{6} = \frac{10}{\square}$

(d) $\frac{16}{24} = \frac{2}{\square}$

(e) $\frac{12}{42} = \frac{\square}{7}$

(f) $\frac{10}{80} = \frac{\square}{8}$

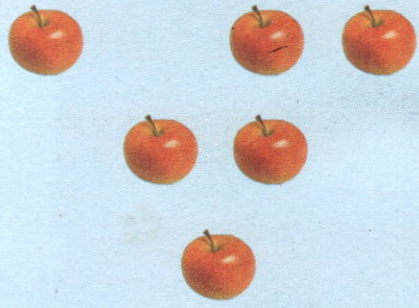
Relationship between Division and Fraction

Consider, you try to divide some apple among 2 children under the following conditions:

(i) 2 Children 4 apples

(ii) 2 Children 2 apples

(iii) 2 Children 1 apple



If you have 4 apples, then each child get 2 apples. If you have 2 apples, then each child get 1 apple and if you have only 1 apple, then each will get half (½) apple.

(i) Each Child get $4 \div 2 = \frac{4}{2} = 2$ apples

(ii) Each Child get $2 \div 2 = \frac{2}{2} = 1$ apple

(iii) Each Child get $1 \div 2 = \frac{1}{2}$ apple

From above explanation, it is clear that, the question of division can be written as fraction and a fraction can also be written in from of divison.

Examples: $18 \div 2 = \frac{18}{2}$, $15 \div 3 = \frac{15}{3}$

$24 \div 6 = \frac{24}{6}$.

Changing improper fraction into mixed fraction

Let, $\frac{19}{5}$ is an improper fraction. Now you have to change it into mixed fraction.

We Know that,

$$\frac{19}{5} = 19 \div 5 \text{ (19 divide by 5)}$$

On division, we get,

quotient = 3, remainder = 4.

$$\begin{array}{r} 3 \\ 5\overline{)\,19} \\ -15 \\ \hline 4 \end{array}$$

Since, 4 can not be divisible by 5.

So, $4 \div 5$ can be written as $\frac{4}{5}$ in fraction.

Hence, $\frac{19}{5} = 3\,\frac{4}{5}$

You can also learn it as follows:

Denominator ➡ $\begin{array}{r} 3 \\ 5\overline{)\,19} \\ -15 \\ \hline 4 \end{array}$ Whole / Numerator

Method: To change an improper fraction into a mixed fraction divide numerator by denominator and write quotient as whole, remainder as numerator and divisor as denominator.

Now change the following improper fractions into mixed fractions.

$\frac{7}{2}$, $\frac{15}{4}$, $\frac{25}{6}$, $\frac{39}{3}$, $\frac{17}{2}$, $\frac{75}{16}$, $\frac{80}{15}$

Changing Mixed Fraction into Improper Fraction

Let, $2\frac{3}{5}$ is a mixed fraction. Now, you have to change it, into an improper fraction. You can write $2\frac{3}{5}$ as follows:

$$2\frac{3}{5} = 2 + \frac{3}{5}$$

$$= \frac{2}{1} + \frac{3}{5} \quad \text{(Fractions with different denominators)}$$

$$= \frac{2 \times 5}{1 \times 5} + \frac{3 \times 1}{5 \times 1} \quad \text{(Change into fraction with same denominators)}$$

$$= \frac{10}{5} + \frac{3}{5}$$

$$= \frac{10 + 3}{5}$$

$$= \frac{13}{5}$$

You can also change a mixed fraction into an improper fraction easily as follows:

$$2\frac{3}{5} = \frac{(2 \times 5) + 3}{5} = \frac{10 + 3}{5} = \frac{13}{5}$$

Method: To change a mixed fraction into an improper fraction, multiply 'whole' with 'denominator' and then add numerator to the product, which will be the numerator of improper fraction. Denominator will be same as mixed fraction.

$$\text{Whole}\ \frac{\text{Numerator}}{\text{Denominator}} = \frac{(\text{Denominator} \times \text{Whole}) + \text{Numerator}}{\text{Denominator}}$$

Exercise 10.6

1. Fill in the blanks:

(i) $3\frac{4}{11} = \frac{37}{\square}$ (ii) $5\frac{2}{3} = \frac{\square}{3}$ (iii) $4\frac{3}{8} = \frac{\square}{8}$

(iv) $9\frac{1}{7} = \frac{\square}{7}$ (v) $7\frac{1}{9} = \frac{\square}{9}$ (vi) $15\frac{4}{9} = \frac{\square}{9}$

(vii) $3\frac{\square}{10} = \frac{37}{10}$ (viii) $\frac{45}{8} = \square\frac{5}{8}$

2. Change the following mixed fractions into Improper Fractions:

(i) $12\frac{5}{7}$ (ii) $2\frac{8}{9}$ (iii) $4\frac{3}{5}$

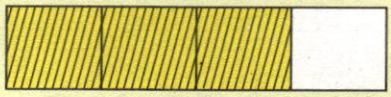
(iv) $18\frac{2}{3}$ (v) $3\frac{1}{20}$ (vi) $3\frac{1}{33}$

3. Change the following Improper fractions into mixed fractions:

(i) $\frac{102}{14}$ (ii) $\frac{64}{9}$ (iii) $\frac{27}{7}$

(iv) $\frac{19}{6}$ (v) $\frac{94}{15}$

Comparing Fractions with equal denominators

(1) (2) 

Look at the shaded part of above pictures.
We observe that,

Shaded part of (1) = $\frac{2}{4}$

Shaded part of (2) = $\frac{3}{4}$

From pictures, it is clear that, shaded part of picture (2) is more than picture (1). It will be mathematically written as follows:

$\frac{2}{4} < \frac{3}{4}$ ($\frac{2}{4}$ is lesser than $\frac{3}{4}$)

or $\frac{3}{4} > \frac{2}{4}$ ($\frac{3}{4}$ is greater than $\frac{2}{4}$)

- If two fractions having same denominators, then fraction with greater numerator will be greater

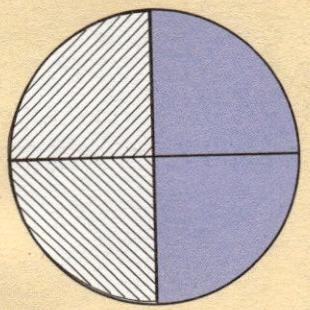
Exercise 10.7

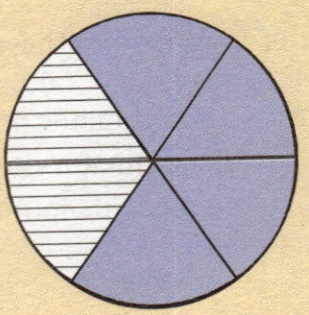
Fill in the blanks with symbols > and < :

(1) $\frac{5}{12} \square \frac{9}{12}$ (2) $\frac{4}{7} \square \frac{3}{7}$ (3) $\frac{50}{100} \square \frac{47}{100}$

(4) $\frac{14}{20} \square \frac{18}{20}$ (5) $\frac{25}{30} \square \frac{24}{30}$ (6) $\frac{23}{45} \square \frac{32}{45}$

Comparing Fractions with equal or common numerator

(1) 

(2) 

In fig (1), Shaded part represents the fraction $\frac{2}{4}$ and In fig (2), shaded part represnts the fraction $\frac{2}{6}$. There are two fractional numbers with same numerator.

We observe that, fig (1) has more shaded part than fig (2). It means that, $\frac{2}{4} > \frac{2}{6}$.

- If two fractions having same numerators, then the fraction with smaller denominator will be greater.

Exercise 10.8

1. Put in squares the symbol of 'greater than' or 'smaller than'($>$, $<$).

(i) $\frac{12}{35} \square \frac{12}{40}$ (ii) $\frac{9}{5} \square \frac{9}{4}$ (iii) $\frac{105}{310} \square \frac{105}{205}$

(iv) $\frac{45}{90} \square \frac{45}{70}$ (v) $\frac{24}{99} \square \frac{24}{90}$ (vi) $\frac{27}{38} \square \frac{27}{30}$

Comparing two fractions with different denominators and numerators

Example: Which of these is larger fraction $\frac{2}{7}$ or $\frac{3}{5}$

Solution: Denominator or numerator of the first fraction is not equal to denominator or numerator of the second fraction. So we have to make denominators equal.

$$\frac{2}{7}, \frac{3}{5}$$

$$\frac{2 \times 5}{7 \times 5}, \frac{3 \times 7}{5 \times 7}$$

$$\frac{10}{35}, \frac{21}{35}$$

Now it is very easy to compare $\frac{10}{35}$ and $\frac{21}{35}$

since $21 > 10$

So, $\frac{21}{35} > \frac{10}{35}$ or $\frac{2}{7} < \frac{3}{5}$

Exercise 10.9

1. Compare the following fractions by using the symbols $<$, $>$:

(i) $\frac{9}{11}, \frac{4}{7}$ (ii) $\frac{5}{3}, \frac{1}{4}$ (iii) $\frac{9}{8}, \frac{5}{6}$

(iv) $\frac{5}{20}, \frac{2}{30}$ (v) $\frac{7}{11}, \frac{3}{7}$

CHAPTER 11

CONCEPT OF DECIMAL

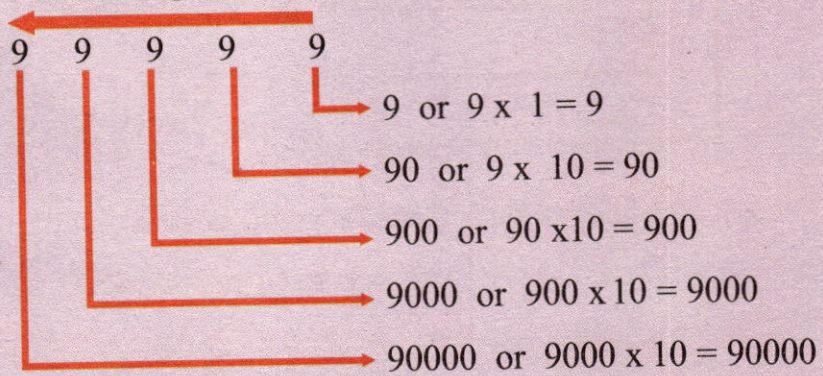
Consider the following numbers:

3 8 5 place value of $5 = 5 \times 1 = 5$

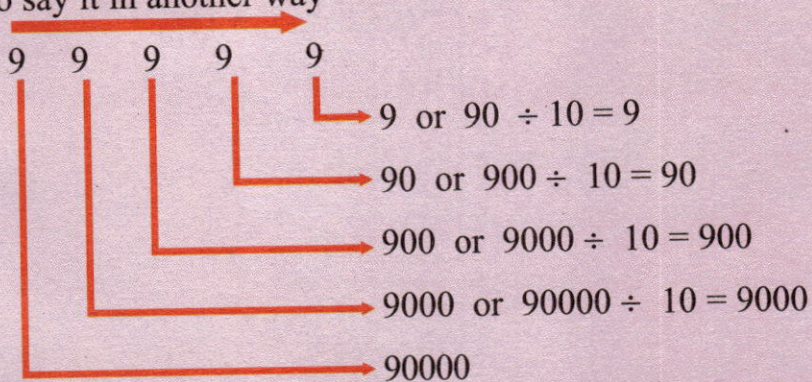
4 5 2 place value of $5 = 5 \times 10 = 50$

5 3 7 place value of $5 = 5 \times 100 = 500$

So as we move left, the place value gets multiplied by 10 at each step.



You can also say it in another way



As we move right, the value of each digit gets divided by 10 at every step.

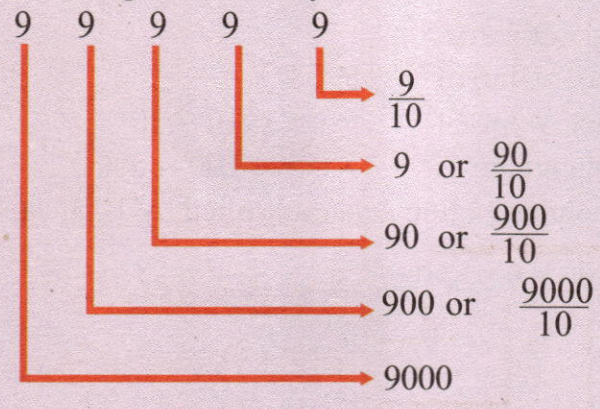
What will happen if we write one more 9 right to Ones place

TTh	Th	H	T	O	(?)
9	9	9	9	9	9

$\frac{90}{10} = 9$ Ones (at Ones)

$\frac{900}{10} = 90$ or at Tens

We can write one (or more) numbers to the right of Ones place but we must separate the number by a dot (.) or DECIMAL POINT as the number to the right of Ones place is alway less than one.



The number next to Ones place (at right) is 10th part of unit.

$1.5 = 1 \text{ and } \frac{5}{10}$

$11.5 = 1 \text{ Tens} + 1 \text{ Ones} + \frac{5}{10}$

$324.7 = 3 \text{ Hundred} + 2 \text{ Tens} + 4 \text{ Ones} + \frac{7}{10}$

You see if any fraction is in the form of $\frac{\square}{10}$, It is also written as decimal.

$\frac{1}{10} = .1$

$\frac{2}{10} = .2$

$\frac{3}{10} = .3$

$\frac{6}{10} = .6$

$\frac{9}{10} = .9$

Examples:

write in decimal form-

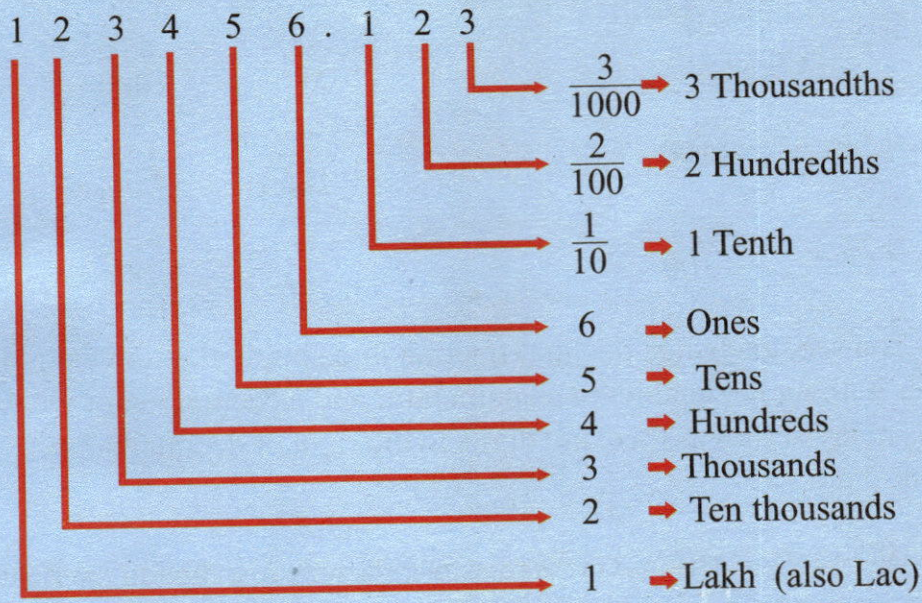
$\frac{7}{10}, \frac{8}{10}, \frac{5}{10}, \frac{3}{10}, \frac{1}{10}, \frac{6}{10}$

Write in Fraction form-

0.5, .7, .8, .3, .4, .2, .1, .9, .6

Note: 4.5 is read as 4 Point 5

Example:


1 2 3 4 5 6 . 1 2 3
3/1000 → 3 Thousandths
2/100 → 2 Hundredths
1/10 → 1 Tenth
6 → Ones
5 → Tens
4 → Hundreds
3 → Thousands
2 → Ten thousands
1 → Lakh (also Lac)

You have seen that as we move right the value of digits decrease ten times (i.e. become $\frac{1}{10}$ of the previous value).

$$0.12 = \frac{12}{100}$$

$$0.123 = \frac{123}{1000}$$

$$0.47 = \frac{47}{100}$$

on expanding 0.12 we get

$$0.12 = 0 + \frac{1}{10} + \frac{2}{100}$$

or $\frac{10}{100} + \frac{2}{100} = \frac{10+2}{100} = \frac{12}{100}$

So $0.12 = \frac{12}{100}$

$0.1 = \frac{1}{10}$

$0.2 = \frac{2}{10}$

$0.12 = \frac{12}{100}$

$0.23 = \frac{23}{100}$

$0.45 = \frac{45}{100}$

$0.451 = \frac{451}{1000}$

$0.123 = \frac{123}{1000}$

$0.786 = \frac{786}{1000}$

You see, to change decimal fraction into simple fraction we write the number without decimal point as numerator and as denominator we write 1 with as many zeroes as there are digits to the right of decimal point.

One digit

$0.5 = \frac{5}{10}$ ← One zero as there is only one digit to the right of decimal point

2-digit

$0.05 = \frac{05}{100}$ or $\frac{5}{100}$ ← 2 zeroes.

3-digit

$0.768 = \frac{768}{1000}$ ← 3 zeroes.

4-digit

$0.3789 = \frac{3789}{10000}$ ← 4 zeroes.

➡ Decimal fraction has two parts. Left to decimal is a whole number and right to decimal is called decimal number. If there is no whole number befor decimal, then '0' should be written.

How do we read decimal numbers

2347.6895 is read as —

Two thousand three hundred forty seven point six eight nine five (digits right to the decimal point are read individually)

Exercise 11.1

1. Change into decimal fraction:

(i) $\frac{5}{10}$ (ii) $\frac{7}{10}$ (iii) $\frac{54}{10}$ (iv) $\frac{87}{10}$

2. Write in fractional number:

(i) 0.6 (ii) 0.9 (iii) 3.2 (iv) 7.5

3. Write in numerals:

(i) Four point two

(ii) Seven point three six

(iii) Fifty one point eight zero one

4. Read the following numbers and write in words:

(i) 13.92 (ii) 324.574 (iii) 0.68

Proper Decimal Fraction:

The decimal fractions have only a decimal part, and no whole number before decimal point, are called "Proper Decimal Fractions".

For Example: 0.25, 0.01, 0.051

Improper or Mixed Decimal Fraction:

The decimal fractions have a whole number or integral part to the left and fractional part to the right of decimal point, are called "Improper or Mixed Decimal Fractions".

For Example: 4.25, 15.37, 10.58

Note: If you writing zeros to the extreme left of the integral part or extreme right of the decimal part, does not change the value of the decimal fractions.

For Example: $0.5 = 0.500$

or 5 parts of 10 equal parts = 500 parts of 1000 equal parts

$$\text{or} \quad \frac{5}{10} = \frac{500}{1000}$$

$$\text{or} \quad \frac{5}{10} = \frac{5}{10} \cdot \frac{100}{100}$$

And 2.5 can be written as 002.5.

Place value chart of decimal number

LEFT ← → RIGHT

Thousands	Hundreds	Tens	Ones	DECIMAL POINT.	Tenths	Hundredths	Thousandths
1000	100	10	1		$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
5	5	5	5		5	5	5
$= 5000$	$= 500$	$= 50$	$= 5$		$= \frac{5}{10}$	$= \frac{5}{100}$	$= \frac{5}{1000}$
Five thousand	Five hundred	Fifty (Five tens)	Five (Five ones)		5-tenths	5 - hundredths	5 - thousandths

- If a digit moves from left to right, then its place value decreases ten times. From the tabel, when 5 at ones place moves to tenth place, its place value becomes 5 tenth. Similarly, to move more steps to right, then its place values becomes 5 Hundredth, 5 Thousandth ..... and so on.

Changing of fractions with denominators 10,100,1000 into decimal:

Look at the following examples-

$\frac{1}{10} = 0.1$ [One on first place right to decimal point]

$\frac{1}{100} = 0.01$ [One on second place right to decimal point]

$\frac{1}{1000} = 0.001$ [One on third place right to decimal point]

$\frac{1}{10000} = 0.0001$ [One on 4th place right to decimal point]

Similary $0.9 = \frac{9}{10}$ [9 on first place to the right of decimal]

$0.09 = \frac{09}{100}$ or $\frac{9}{100}$ [9 on second place]

$0.009 = \frac{009}{1000}$ or $\frac{9}{1000}$ [9 on third place to the right of decimal]

$\frac{4}{10} = 0.4$ [one digit after decimal]

$\frac{4}{100} = 0.\overbrace{04}^{\text{2 digits}}$ [2 digits after decimal one zero added to complete 2 place; note 0 must be added on the left side and not like .40]

$\frac{4}{1000} = \overbrace{.004}^{\text{3 digits}}$

and so on.

This shows that to change fraction into decimal we put decimal to the left of the digit after as many places as there are zeroes in the denominator.

Exercise 11.2

1. Change into decimal:

(i) $\frac{3}{10}$ (ii) $\frac{6}{10}$ (iii) $\frac{17}{100}$ (iv) $\frac{42}{100}$ (v) $\frac{15}{100}$

(vi) $\frac{125}{1000}$ (vii) $\frac{40}{1000}$ (viii) $\frac{9}{1000}$ (ix) $\frac{1274}{1000}$

2. Change into fractions.

(i) 0.6 (ii) 0.54 (iii) 0.321 (iv) 2.35

(v) 19.7 (vi) 1.2

[Hint: $2.75 = 2\frac{75}{100}$; $13.125 = 13\frac{125}{1000}$]

3. Read and express in words:

(i) 5.7 (ii) 15.42 (iii) 9.08

4. Write in numerals:

(i) Twenty two point five nine

(ii) Forty three point zero zero six

(iii) Twelve and one hundred twenty four thousandth

(iv) Two and fifteen thousandths.

Use of decimal in Rupees and Paise

You have learnt that, 1 rupee = 100 paise or 100 paise = 1 rupee.

So, 1 paisa = $\frac{1}{100}$ rupee or 1 paisa = 0.01 rupee

2	Paise	=	Rs.	0.02
3	Paise	=	Rs.	0.03
10	Paise	=	Rs.	0.10
20	Paise	=	Rs.	0.20
25	Paise	=	Rs.	0.25

You have already learnt in class 3rd, to write Rupees and paise by using decimal.

For Example:

5 Rupees	25 Paise	=	Rs. 5.25
10 Rupees	70 Paise	=	Rs. 10.70
12 Rupees	5 Paise	=	Rs. 12.05

Exercise 11.3

1. Write in Rs. using decimal point:

(i) 2 rupees 50 paise (ii) 8 rupees 90 paise

(iii) 12 rupees 75 paise (iv) 6 rupees 5 paise

(v) 75 paise

2. Write rupees and paise in words:

(i) Rs. 15.08 (ii) Rs. 100.25 (iii) Rs. 40.05

(iv) Rs. 0.65

Use of decimal in measures of length

(A) Centimetre and Metre:

You know that, 100 cm = 1 m.

So, 1 cm is one hundredth part of 1 m.

or $1 \text{ cm} = \frac{1}{100} \text{m}$

or $1 \text{ cm} = 0.01 \text{ m}$

Similarly, you can write,

$$2 \text{ cm} = \frac{2}{100} \text{ m} = 0.02\text{m}$$

$$6 \text{ cm} = \frac{6}{100} \text{m} = 0.06 \text{ m}.$$

and so on

Example: Express 8m 25 cm. in metre using decimal notation.

Solution: First, change 25 cm into metre,

$25 \text{ cm} = \frac{25}{100} \text{m} = 0.25 \text{ m}$

So, 8 m 25 cm = 8 m + 0.25 m

= 8.25 m

$$\begin{array}{r} 8.00 \text{ m} \\ +\ 0.25 \text{ m} \\ \hline 8.25 \text{ m} \end{array}$$

Example: Express 14m 75 cm. in metre using decimal notation.

Solution: change, 75 cm into metre,

$75 \text{ cm} = \frac{75}{100} \text{ m} = 0.75 \text{ m}$

So, 14 m 75 cm = 14 m + 0.75 m

= 14.75 m

$$\begin{array}{r} 14.00 \text{ m} \\ +\ \ 0.75 \text{ m} \\ \hline 14.75 \text{ m} \end{array}$$

(B) Millimetre and Centimetre:

You know that, 10 mm = 1 cm.

or $1 \text{ mm} = \frac{1}{10} \text{cm} = 0.1 \text{ cm}$

So, 1 mm is tenth part of 1 cm.

Example 1 : Express 9 mm in cm.

Solution : Since, 1 mm is the tenth part of 1 cm.

So, $9 \text{ mm} = \frac{9}{10} \text{ cm} = 0.9 \text{ cm}$

Example 2 : Express 4cm 5mm in cm.

Solution : First, we change mm into cm

$5 \text{ mm} = \frac{5}{10} \text{ cm} = 0.5 \text{ cm}$

So, $4 \text{ cm } 5 \text{ mm} = 4 \text{ cm} + 0.5 \text{ cm}$

$= 4.5 \text{ cm}$

(C) Metre and kilometre:

You know that, $1000 \text{ m} = 1 \text{ km}$.

or $1 \text{ m} = \frac{1}{1000} \text{ km}$.

or $1 \text{ m} = 0.001 \text{ km}$.

Similarly, $6 \text{ m} = \frac{6}{1000} \text{ km} = 0.006 \text{ km}$.

and so on.

Example : Using decimal notation, express 8 km 575 m in km.

Solution : First, we change, 575 m in km.

$575 \text{ m} = \frac{575}{1000} \text{ km} = 0.575 \text{ km}$.

So, $8 \text{ km } 575 \text{ m} = 8 \text{ km} + 0.575 \text{ km}$

$= 8.575 \text{ km}$.

Exercise 11.4

[A] Change into decimal:

(i) 2 m 15 cm (ii) 10 m 5cm (iii) 4 cm 7 mm

(iv) 12 cm 2 mm (v) 50 Km 275 m (vi) 24 Km 48 m

[B] Write in big and small units:

Example: 6.25 m = 6 m and 25 cm

(i) 8.3 cm = ——— and ———

(ii) 15.925 Km = ——— and ———

(iii) 2.09 m = ——— and ———

(iv) 32.006 km = ——— and ———

Use of decimal in measures of weight

You know that, $1000\ g = 1\ Kg$

$1\ g = \frac{1}{1000}\ Kg$ or $0.001\ Kg$

Example : Using decimal notation to express 14 kg 240 g in kg.

Solution : $240\ g = \frac{240}{1000} Kg = 0.240\ kg = 0.24\ Kg$

So, $14\ Kg\ 240\ g = 14\ Kg + 0.240\ Kg$

$= 14.240\ Kg$

$$\begin{array}{r} 14.000\ Kg \\ +\ 0.240\ Kg \\ \hline 14.240\ Kg \end{array}$$

Exercise 11.5

1. Write in Kg using decimal:

(i) 5 Kg 380 g (ii) 90 Kg 125 g (iii) 12 Kg 7 g

2. Write in Kg and g separately:

(i) 4.350 Kg (ii) 35.075 Kg (iii) 90.200 Kg

Use of decimal in measure of capacity

You know that, $1000\ ml = 1\ l$

So, $1\ ml = \frac{1}{1000}\ l = 0.001\ l$

Example : Using decimal notation, change $5\ l\ 25\ ml$ in l.

Solution : First, change 25 ml in l.

$25\ ml = \frac{25}{1000}\ l = 0.025\ l$

So, $5\ l\ 25\ ml = 5\ l + 0.025\ l$

$= 5.025\ l$

Exercise 11.6

1. Express in litres using decimal:

(i) $8\ l\ 600\ ml$ (ii) $2\ l\ 50\ ml$ (iii) $4\ l\ 750\ ml$

2. Write in l and ml separately:

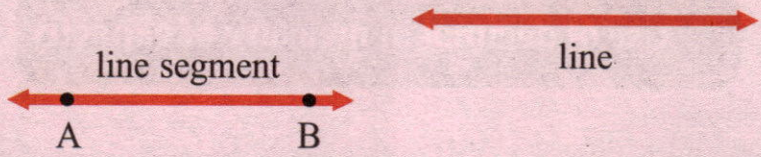
(i) $12.500\ l$ (ii) $3.950\ l$ (iii) $9.075\ l$

CHAPTER 12

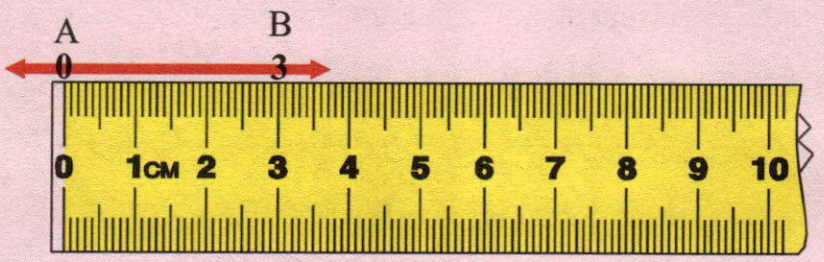
LINE SEGMENT

Point is represented by a dot (•) Line segment is the distance between any two points on a line.

Line is one that extends to infinity on both the directions. It is shown as double headed arrow.

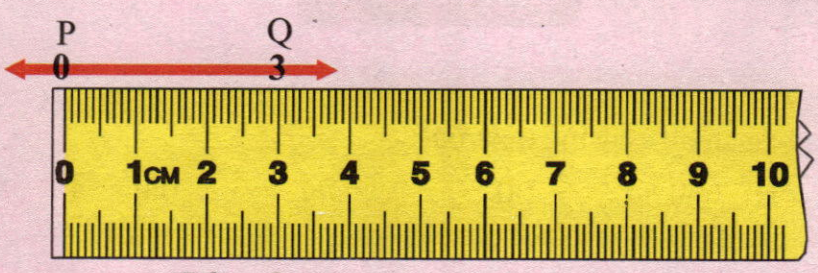


There are two points A and B on a line. The part between A and B is a line segment. Now measure line segment AB with a scale.



AB = 3 cm

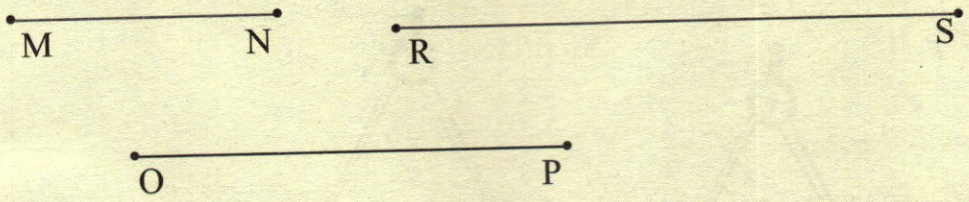
Measure line segment PQ



PQ = 3 cm

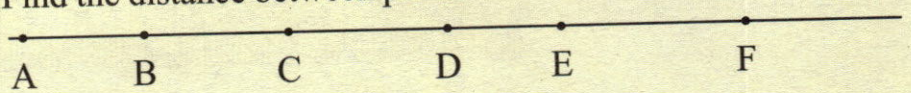
Exercise 12.1

1. Measure the following line segments:



2. Draw line segments of 5cm, 6 cm, 9 cm, 3 cm.

3. Find the distance between points:

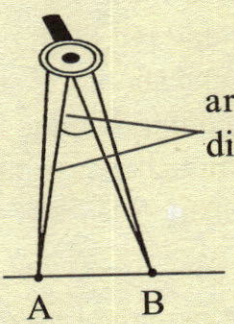


(i) AB (ii) AD (iii) BE (iv) AF (v) AE (vi) BF

(Use sharp and pointed pencil to get a fine line. Draw only once. Do not repeat over and again to make it look dark.)

Use of Divider

Divider is an instrument in your geometry box. It has two pointed arms fixed through a screw or nut bolt which can be opened and closed as required.



arms of a divider

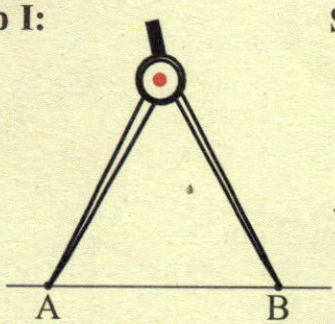
It is used to measure and draw a line segment.

How to measure a line segment using a divider

Put pointed end of one arm on the point A and open the other one so that it touches the point B exactly. Remove the divider without disturbing its arms and put it over measuring scale so

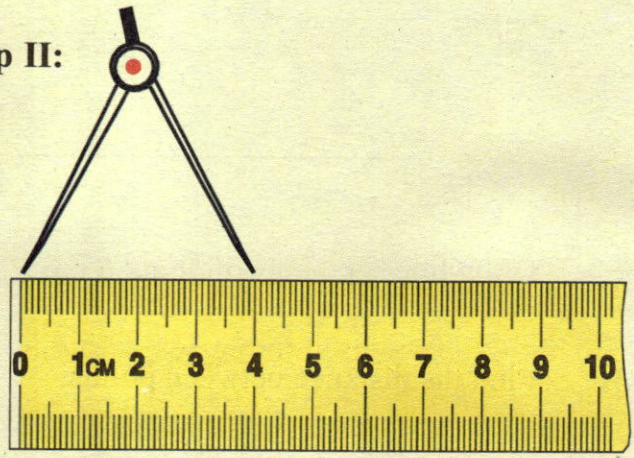
that one end touches Zero mark and other pointed end touches the scale on any certain mark. Note down the number which is in touch with the other end of the pointed arm.

Step I:



Measuring line segment AB

Step II:



Scale

How to draw a line segment using divider:

Example: Draw a line segment of 5.5 cm.

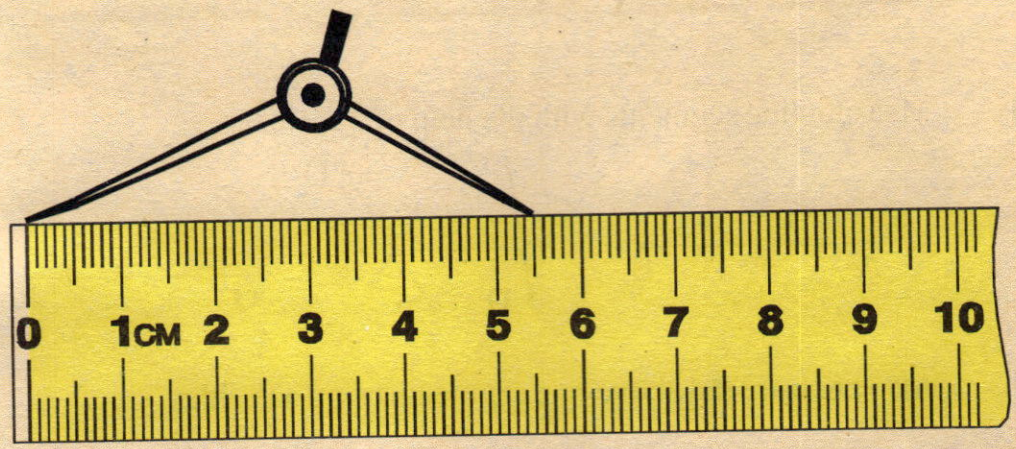
Method : Draw a line approximately 7 cm long. Now open the two arms of a divider and put them on a scale so that one of the arms touches 'zero' of the scale and another is sharply at 5.5 cm mark. Remove the divider from the scale and put it over the line segment pressing a bit so as to mark the point. [Sharp pointed ends of the arm when pressed gently on the paper will make pin hole marks] Darken these marks with a sharp pencil and name them A and B.

A B is the required line segment of 5.5 cm

Step 1: Draw a line of 7 cm

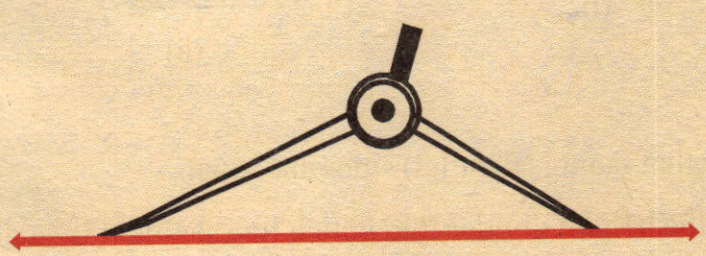
7 cm approximately

Step 2:

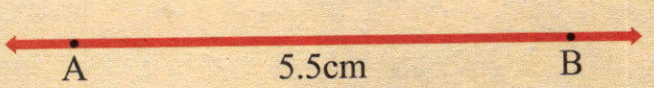


Open the arms of a divider and put it on a scale. One arm touches Zero and another is at 5.5 cm mark.

Step 3:



Step 4:

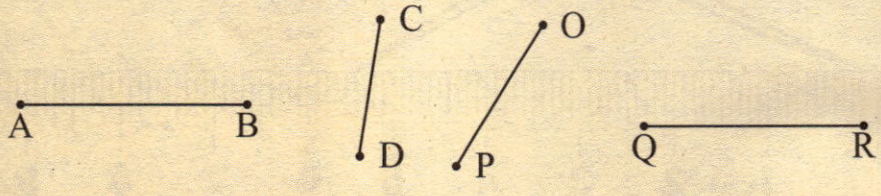


Line Segment AB = 5.5 cm

Similarly we can also compare two line segments and find which one is larger.

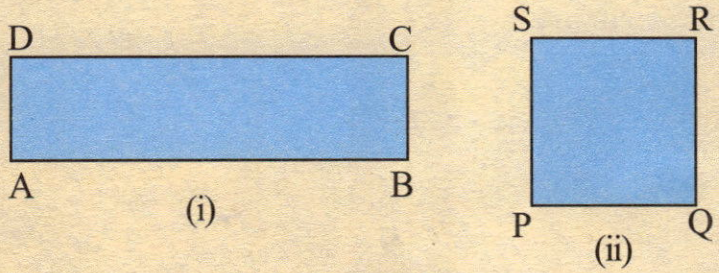
Exercise 12.2

1. Measure line segments with the help of a scale.



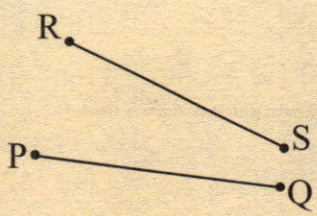
2. Also measure the above line segments using a divider.

3. Measure line segments in the following figures



Show that facing (Parallel) sides are equal.

4. With the help of divider find which line segment is smaller.

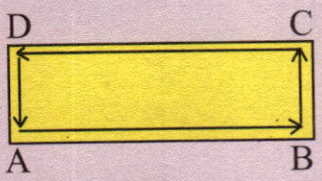


5. Draw line segments of given measurements:

(i) 3.5 cm (ii) 7.6 cm (iii) 4.5 cm (iv) 5.7 cm

PERIMETER

If we start from point A and go to Point B, point C, Point D and finally reach point A again we say that, we have made one full round of the rectangle.



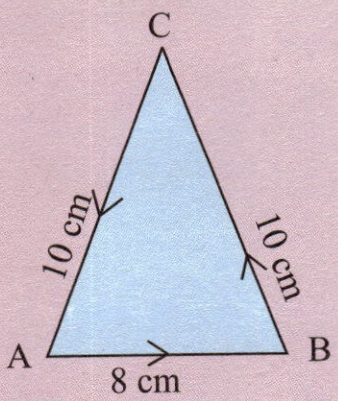
If AB = 10 cm, BC = 6 cm, how long did we move to reachA after making one full round.

= AB + BC + CD + DA

= 10 + 6 + 10 + 6

= 16 + 16

= 32 cm



In adjoining figure-

How much will a spider walk if it starts from A and reaches again on A

First it will go from A to B	=	8 cm
then B to C	=	10 cm
again C to A	=	10 cm
Total	=	28 cm

- A rectangle has 4 sides, total length of all the 4 sides = One full round of the rectangle.
- A triangle has 3 sides; Total length of all the 3 sides = One full round of the triangle.

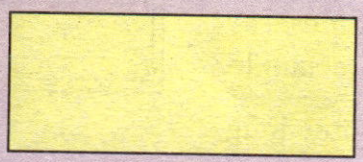
This is also called PERIMETER of the rectangle and triangle respectively.

So, The distance around a figure is called its 'PERIMETER'.

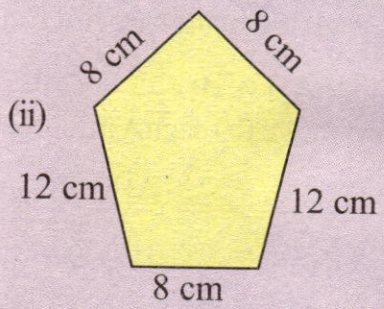
Exercise 12.3

(1) Find the perimeter of the following shapes:

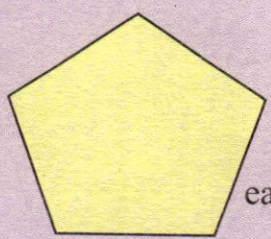
(i)



(ii)

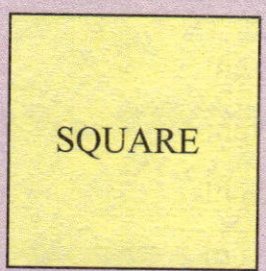


(iii)

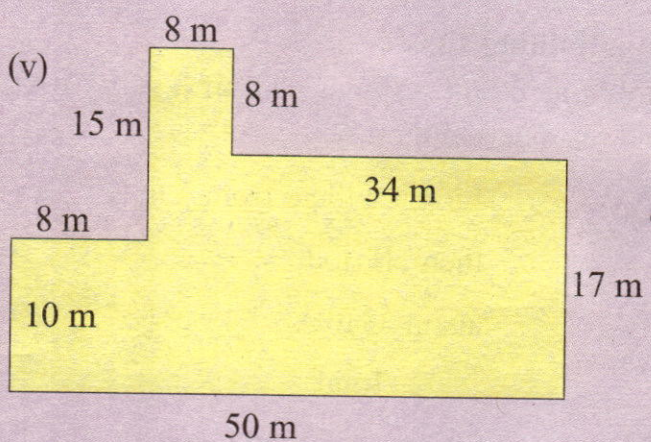


each side = 13 cm

(iv)



(v)



Activity:

(1) Take a post card and sketch its sides on your note-book. Measure its sides. Find the perimeter.

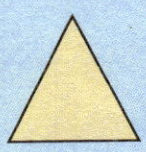
(2) Find the perimeter of one-rupee, 5-rupee 10-rupee and 100-rupee notes.

(3) Find the perimeter of your table and mat.

(4) Measure the sides of your Mathematics book and find its perimeter.

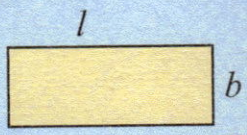
Finding Perimeters of Geometrical Shapes

(1) Triangle



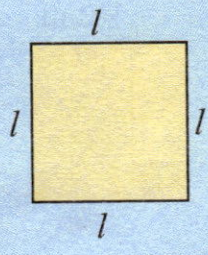
Perimeter of triangle
= Sum of the three sides

(2) Rectangle



Perimeter of rectangle = 2 (l + b)
l = length, b = breadth

(3) Square

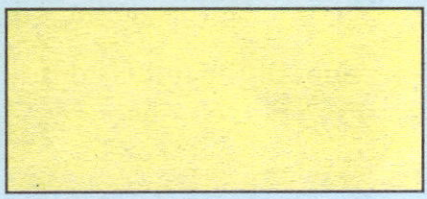


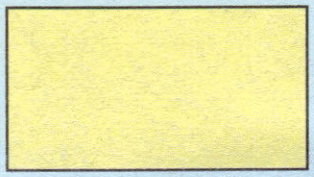
Perimeter of square = 4 x one side
= 4 x l

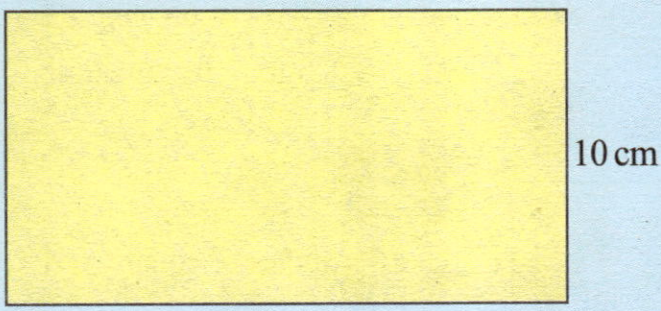
Note: (1) In rectangle opposite sides are parallel and equal.
(2) In square, all the four sides are of equal lengths.

Exercise 12.4

1. Find the perimeter of each rectangle with two different methods:

(i) 

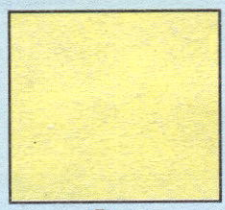
(ii) 

(iii) 

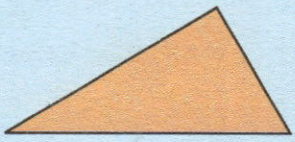
2. Find the perimeter of each square with two different methods:

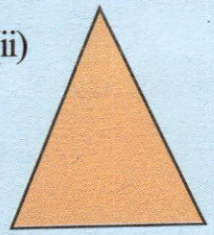
(i)

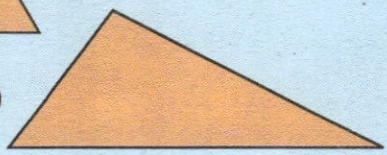
(ii)

(iii) 

3. Measure the sides of each triangle and then find their perimeters:

(i) 

(ii) 

(iii) 

Answers

(Revision)

1. (i) Seven Hundred Ninty Five.
(ii) Ninteen Thousand Seven Hundred Twenty.
(iii) Fifteen Thousand Forty Three.
(iv) Thirteen Thousand Five.
(v) Ten Thousand Two Hundred One.

2. (i) 2000, 500, 30, 7
(ii) 40 000, 7000, 500, 20, 1
(iii) 10 000, 8000, 300, 5
(iv) 10 000, 5000, 30, 7
(v) 10 000, 200, 1

3. (i) 72 (ii) 63 (iii) 56 (iv) 77 (v) 65
(vi) 90 (vii) 48 (viii) 98 (ix) 150 (x) 70

4. (i) 3,397 (ii) 16,224 (iii) 1,445 (iv) 26,085
(v) 15,680 (vi) 728 (vii) 5,577 (viii) 14,985

5. 6,300 **6.** 26,250

7. (i) Q = 188, R = 1 (ii) Q = 36, R = 0
(iii) Q = 50, R = 10 (iv) Q = 58, R = 2
(v) Q = 101, R = 7 (vi) Q = 70, R = 2
(vii) Q = 111, R = 0

8. Rs. 41 **9.** Rs. 80 **10.** 15 *litre.*

Exercise 2.1 (A)

2. Four digits. **3.** 1000 **4.** 9999

5. (a) Eighty Eight Thousand and Twenty Nine

(b) Fifty seven Thousand Eight Hundred Five.

6. (a) 90, 289 (b) 18, 003

8. (i) 100, 000 (ii) 100 Thousand (iii) Five

9. 1,00,000 **10.** 9,9 9,999

Exercise 2.1 (B)

1. (a) One lakh Fifty Two Thousand Fifty Four.

(b) Seven lakh Five Thousand Three Hundred Thirty Nine.

(c) Forty three lakh sixty Five Thousand Four Hundred Twenty Two.

(d) Sixty one lakh Thirty Four Thousand Nine Hundred Eighteen.

2. (a) 3,43,109 (b) 8,89,002 (c) 27,54,219

(d) 55,66,202 (e) 75,00,520

3. One Crore.

4. (a) Five lakh Sixty Six Thousand Fifty.

(b) Seventeen lakh Thirty Nine.

(c) Three lakh Ninty Thousand Seven Hundred Thirty Nine

(d) Ten lakh Fifty Two Thousand Sixty Nine.

(e) Nine Crore Eighty Five lakh Fifty Nine Thousand Seven Hundred Nine.

(f) Fifteen Crore Seventy two lakh sixty Thousand Three Hundred Seventy Nine

5. (i) 7, 27, 54, 209 (ii) 15, 42, 84, 000 (iii) 72, 05, 06, 032

(iv) 84, 00, 07, 214 (v) 50, 00, 08, 945 (vi) 89, 69, 59, 901

6. (iii) 100 (iv) 1000 (v) 99,999

(vi) 1,00,000 (viii) 9,99,99,999 (ix) 10,00,00,000

7. (i) 4,516 ; 4,616 ; 4,716

(ii) 8,607 ; 8,707 ; 8,807

(iii) 7,400 ; 7,300 ; 7,200

8. (i) 8,232 ; 9,232 ; 10,232 ; 1 1,232

(ii) 4,848 ; 5,848 ; 6,848 ; 7,848

(iii) 5,105 ; 6,105 ; 7,105 ; 8,105

(iv) 8,709 ; 9,709 ; 10,709 ; 1 1,709

(v) 7,107 ; 6,107 ; 5,107 ; 4,107

Exercise 2.2

1. (a) 3,00,000 (b) 30,00,000 (c) 3

2. (a) 80 (b) 8,000 (c) 80,00,000 and 8,00,000

(d) 80,00,00,000 (e) 8

3. Five

Exercise 2.3

1.

Ten Lakh.	Lakh	Ten Thousand	Thousand	Hundreds	Ten	Ones
4	5	4	2	3	6	1
40,00,000	5,00,000	40,000	2,000	300	60	1

Lakh		Thousand		Unit		
Ten Lakh. 10,00,000	Lakh 1,00,000	Ten Thousand 10,000	Thousand 1,000	Hundred 100	Tens 10	Ones 1
4	5	4	2	3	6	1

2. (a) 2 Hundred = 200 (b) 2 Crore = 2,00,00,000

(c) 2 Lakh = 2,00,000 (d) 2 Hundred = 200

(e) 2 Lakh = 2,00,000 and 2 Ten Thousand = 20,000

3. (a) Thirteen Crore Eighty One lakh Eighty Eight Thousand Two Hundred Forty.

(b) Two Crore Forty lakh Eighty Thousand Sixteen.

(c) One Crore Ninty Two lakh Fifteen Thousand Seven Hundred Thirty.

(d) Seventy Nine lakh Fifty Five Thousand Two Hundred Seven.

(e) Forty two lakh Twenty Five Thousand Fifty Three.

4. (a) 10,000 ; 3,00,000 ; 700

(b) 10 ; 3,00,000 ; 800

(c) 1,000 ; 700 ; 80,000 ; 8

(d) 100 ; 3,00,00,000 ; 30,000

5. 8,00,000 ; 80

6. 30,00,000 ; 300 ; difference = 29,99,700

7. 1000 times

8. (ii) > (iii) > (iv) < (v) >

(vi) < (vii) > (viii) <

Exercise 2.4

1. (a) The number will in crease.

2. decreased **3.** remain same **4.** increased

5. (a) decreased (b) increased.

6. (i) Uttar Pradesh (19,95,81,520) (ii) Bihar (10,38,04,637)

(iii) Andhra Pradesh (8,46,65,533) (iv) Tamil Nadu (7,21,38,958)

(v) Karnataka (6,11,30,704) (vi) Kerala (3,33,87,677)

(vii) Panjab (2,77,04,236) (viii)J & K (1,25,48,926)

7. (i) Gujrat (45,92,854) (ii) J & K (67,93,240)

(iii) Andhra Pradesh (69,86,856) (iv) Asam (82,40,611)

(v) Maharashtra (1,02,70,485) (vi) Bihar (1,37,22,048)

(vii) West Bengal (2,02,40,543) (viii)U. P. (3,07,40,158)

Exercise 2.5

1. (i) 60,000 ; 400 ; 9 (ii) 7000 ; 700 ; 50

(iii) 80,000 ; 90 ; 6 (iv) 90,000 ; 6000 ; 900 ; 70 ; 9

2. (i) 40,000 + 2,000 + 80 + 7

(ii) 30,000 + 9,000 + 900 + 60 + 9

(iii) 20,000 + 7,000 + 500 + 80 + 9

3. (i) 82,647 (ii) 25,999 (iii) 34,891

Exercise 2.6

1. (i) Twenty Five Million, Three Hundred Fifty Three Thousand, Eighty One.

(ii) Forty One Million, Nine Hundred Forty Seven Thousand, Three Hundred Fifty Eight.

(iii) Twenty Seven Million, Seven Hundred Four Thousand, Two Hundred Thirty Six.

(iv) Sixty Eight Million, Six Hundred Twenty One Thousand, Twelve.

(v) Ninty One Million, Three Hundred Forty Seven Thousand, Seven Hundred Thirty six.

Exercise 2.7

1. (a) 4 (b) 8 (c) 9 (d) 10 (e) 13
(f) 15 (g) 25 (h) 30 (i) 39 (j) 45
(k) 100 (l) 60 (m) 40 (n) 50

2. 9 → IX , 25 → XXV , 37 → XXXVII ,
18 → XVIII , 41 → XLI , 52 → LII

3. IV , VIII , XI , XIV , XIX , XXVII , XXXV , XLVI , L

4. 5 , 9 , 10 , 15 , 20 , 24 , 39 , 40 , 44 , 48

Exercise 3.1

1. (i) 34,38,343 (ii) 50,35,608 (iii) 44,41,263
(iv) 27,18,125 (v) 5,7,8,4,2,5,4

Exercise 3.2

1. 1,32,119 **2(i)** 50,10,68,735 **(ii)** 47,46,75,406

3. 62,62,92,213 **4.** 1,03,26,19,344 **5.** 54,90,659

6. 38,80,51,690 **7.** 98,09,70,857 km. **8.** 84,74,573

Exercise 4.1

1. 16,54,08,813 **2.** 54,09,08,604 **3.** 35,81,95,830

4. 70,30,09,396 **5.** 6,10,07,130 **6.** 35,91,297

Exercise 4.2

1. 33,343 **2.** 40,10,065 **3.** (A) 8,91,755 (B) 14,28,827

4. 270 km. **5.** 9,71,912 **6.** 21, 64, 43, 377

7. U.P., 9, 57, 76, 883 **8.** 10, 99, 53, 404 **9.** 9, 49, 85, 105

Exercise 5.1

1. (i) 96 (ii) 64 (iii) 144 **2.** Rs. 2 (200 paise)

3. 40 paise **4.** 180 **5.** 119 **6.** Rs. 171

7. (i) 80 (ii) 153 (iii) 3 (iv) 72

(v) 112 (vi) 85 (vii) 8 (viii) 114

(ix) 20 (x) 126 (xi) 80 (xii) 20

Exercise 6

1. (A) 10,05,856 (B) 41,74,278 (C) 65,78,542 (D) 4,01,40,510

2. (a) 82,560 (b) 2,18,99,031 (c) 19,57,500 (d) 1,15,94,752

3. (i) 4,35,050 *lit* (ii) Rs.13,36,140 (iii) 52,60,032 kg. (iv) Rs. 9,43,750

(v) Rs. 1,38,92,440 (vi) 45,570 Kg (vii) 21,52,405

(viii) Rs. 9,86,880 (ix) 22,56,750 bags (x) Rs. 21,74,250

(xi) 11,63,064 (xii) Rs. 41,43,750

Exercise 7.1

1. (ii) 0 (iii) 5 (iv) 5 (v) 23, 8 (vi) 10

Exercise 7.2

1. (i) Q=1, R=5 (ii) Q=2, R=74 (iii) Q=78, R=94
(iv) Q=6, R=25 (v) Q=6, R=93 (vi) Q=9, R=8

2. (i) 8 (ii) 40 (iii) 995 (iv) 34

Exercise 7.3

1. (i) Q= 38, R=3 (ii) Q= 311, R=5 (iii) Q=546, R=15
(iv) Q= 326, R=3 (v) Q= 67, R=2 (vi) Q=509, R=2
(vii) Q= 2946, R=9 (viii) Q= 49011, R=4 (ix) Q=56975, R=5

2. (i) Q= 366, R=4 (ii) Q= 124, R=28 (iii) Q=167, R=17
(iv) Q= 153, R=18 (v) Q= 2751, R=10 (vi) Q=2462, R=5

3. 53 **4.** 45 **5.** Shelf = 164, Books =15

6. 75 **7.** 125

8. Amount, each family got = Rs. 6399,
Amount, remaining = Rs. 30

Exercise 8.1

1. (i) 4 (ii) 42 (iii) 25 (iv) 46 (v) 6

2. (i) 24 (ii) 32 (iii) 15 (iv) 2 (v) 35

Exercise 8.2

1. (i) 44 (ii) 32 (iii) 16 (iv) 95 (v) 27
(vi) 56 (vii) 3 (viii)5 (ix) 44 (x) 86
(xi) 60 (xii) 7

Exercise 8.3

1. (i) 30 (ii) 7 (iii) 4 (iv) 175
(v) 2 (vi) 5 (vii) 3 (viii) 60

2. 17 **3.** Rs. 950 **4.** 30 **5.** Rs. 1000

6. Rs. 5,425, Rs. 10,425, Rs. 2,425 **7.** Rs. 58,500, Rs. 16,500

Exercise 9.1

1. (i) 575 (ii) 825 (iii) 1250 (iv) 650 (v) 1575
(vi) 1725 **2.** 375 Paise **3.** Rs. 12.10

Exercise 9.2

1. (i) 5,300 (ii) 6,500 (iii) 12,200 (iv) 15,100

2. 250 gm. **3.** 50 bangles

Exercise 9.3

1. (i) 560 cm (ii) 750 cm (iii) 1340 cm (iv) 1763 cm

2. 4 **3.** 30

Exercise 9.4

1. (i) 8,700 (ii) 5300 (iii) 6750 (iv) 9225

2. 120 **3.** 39 **4.** 3 km 680m **5.** 2000

Exercise 9.5

1. (a) 2,500 (b) 5,800 (c) 9,025 (d) 13,650

2. 5 **3.** 4,800 *ml.*

Miscellaneous

1. (i) 875 (ii) 5,450 (iii) 37 (iv) 575 (v) 8,225 (vi) 12,275

2. (A) 10 (B) Rs. 7.50 **3.** Rs. 3.25 **4.** 100, Rs. 550

Exercise 9.6

1. (i) 440 (ii) 170 (iii) 192 (iv) 315 (v) 565 (vi) 265

2. 2 Hrs 45 Min 30 Sec. **3.** 1 Hr 5 Min 15 Sec.

Exercise 9.7

1. (i) 16,220 (ii) 8,110 (iii) 18,025 (iv) 2,745

2. 28,335 **3.** 630 Min **4.** 270 Min **5.** 838 Min

Exercise 9.8

1. (i) 197 (ii) 102 (iii) 125 (iv) 295 (v) 368 (vi) 490

2. (i) 56 Min 10 Sec (ii) 10 Hr 25 Min (iii) 11 Days 3 Hrs.

3. (i) 146 (ii) 106 (iii) 117 (iv) 188 (v) 161 (vi) 176

4. (i) 22,416 (ii) 1,208 (iii) 46,920 (iv) 4,572

Exercise 9.9

1. (i) 3 (ii) 4 (iii) 2 (iv) 12 (v) 2 (vi) 3

2. 3 Hrs 31 Min 25 sec **3.** 7 Months 15 days 8 Hrs.

Exercise 9.10

1. 20 Hr 41 Min 40 Sec. **2.** 1 Hr 20 Min 40 Sec.

3. 12 Days 20 Hrs 20 Min. **4.** 3 Hrs 20 Min

Exercise 9.11

1. 2 Month 14 Days
2. 1 Month 22 Days 1 Hr 36 Min
3. 3 Years 7 Month 3 Days
4. 4 Hr 37 Min 30 Sec.
5. 2 Days 4 Hrs
6. 25 Min

Exercise 10.1

1. (i) $\frac{8}{9}$ (ii) $\frac{6}{15}$ (iii) $\frac{18}{20}$

2. (i) $\frac{1}{18}$ (ii) $\frac{3}{12}$ (iii) $\frac{2}{8}$

Exercise 10.2

1. (i) $\frac{34}{35}$ (ii) $\frac{8}{15}$ (iii) $\frac{47}{36}$ (iv) $\frac{22}{40}$ (v) $\frac{103}{72}$ (vi) $\frac{35}{72}$

2. (i) $\frac{13}{45}$ (ii) $\frac{5}{28}$ (iii) $\frac{43}{70}$ (iv) $\frac{3}{36}$ (v) $\frac{8}{128}$ (vi) $\frac{38}{165}$

Exercise 10.3

1. (i) , (ii) , (v) **2.** (ii) , (iii) , (iv) **3.** (i) , (ii)

4. (i) U (ii) U (iii) P (iv) I (v) P

(vi) I (vii) I (viii) I (ix) I (x) U

Exercise 10.4

1. $1\frac{1}{2}$ **2.** $2\frac{3}{6}$ **3.** (i) , (ii) , (iv) , (v)

Exercise 10.5

1. (b) $\frac{2}{6}, \frac{3}{9}, \frac{4}{12}$ (c) $\frac{2}{12}, \frac{3}{18}, \frac{4}{24}$ (d) $\frac{6}{8}, \frac{9}{12}, \frac{12}{16}$

2. (a) 10 (b) 4 (c) 60 (d) 3 (e) 2 (f) 1

Exercise 10.6

1. (i) 11 (ii) 17 (iii) 35 (iv) 64

(v) 64 (vi) 139 (vii) 7 (viii) 5

2. (i) $\frac{89}{7}$ (ii) $\frac{26}{9}$ (iii) $\frac{23}{5}$ (iv) $\frac{56}{3}$ (v) $\frac{61}{20}$ (vi) $\frac{100}{33}$

3. (i) $7\frac{4}{14}$ (ii) $7\frac{1}{7}$ (iii) $3\frac{6}{7}$ (iv) $3\frac{1}{6}$ (v) $6\frac{4}{15}$

Exercise 10.7

1. < **2.** > **3.** > **4.** < **5.** > **6.** <

Exercise 10.8

1. (i) > (ii) < (iii) < (iv) < (v) < (vi) <

Exercise 10.9

1. (i) $\frac{9}{11} > \frac{4}{7}$ (ii) $\frac{5}{3} > \frac{1}{4}$ (iii) $\frac{9}{8} > \frac{5}{6}$

(iv) $\frac{5}{20} > \frac{2}{30}$ (v) $\frac{7}{11} > \frac{3}{7}$

Exercise 11.1

1. (i) 0.5 (ii) 0.7 (iii) 5.4 (iv) 8.7

2. (i) $\frac{6}{10}$ (ii) $\frac{9}{10}$ (iii) $\frac{32}{10}$ (iv) $\frac{75}{10}$

3. (i) 4.2 (ii) 7.36 (iii) 51.801

4. (i) Thirteen Point Nine Two

(ii) Three Hundred Twenty Four point Five Seven Four.

(iii) Zero Point Six Eight.

Exercise 11.2

1. (i) 0.3 (ii) 0.6 (iii) 0.17 (iv) 0.42 (v) 0.15
(vi) 0.124 (vii) 0.040 (viii) 0.009 (ix) 1.274

2. (i) $\frac{6}{10}$ (ii) $\frac{54}{100}$ (iii) $\frac{321}{1000}$
(iv) $\frac{235}{1000}$ (v) $\frac{197}{10}$ (vi) $\frac{12}{10}$

3. (i) Five Point Seven
(ii) Fifteen Point Four Two
(iii) Nine Point Zero Eight.

4. (i) 22.59 (ii) 43.006 (iii) 12.124 (iv) 2.015

Exercise 11.3

1. (i) Rs. 2.50 (ii) Rs. 8.90 (iii) Rs. 12.75
(iv) Rs. 6.05 (v) Rs. 0.75

2. (i) 15 Rupees 8 Paise (ii) 100 Rupees 25 Paise
(iii) 40 Rupees 5 Paise (iv) 65 Paise

Exercise 11.4

A. (i) 2.15 m (ii) 10.05 m (iii) 4.7 cm (iv) 12.2 cm
(v) 50.275 km. (vi) 24.048 km.

B. (i) 8 cm, 3mm (ii) 15 km, 925 m (iii) 2 m, 9 cm. (iv) 32 km, 6 m.

Exercise 11.5

1. (i) 5.380 kg (ii) 90.125 kg (iii) 12.007 kg

2. (i) 4 kg 350g (ii) 35 kg 75 g (iii) 90 kg 200g

Exercise 11.6

1. (i) 8.600 *l* (ii) 2.050 *l* (iii) 4.750 *l*

2. (i) 12 *l* 500 *ml* (ii) 3 *l* 950 *ml.* (iii) 9 *l* 75 *ml.*

Exercise 12.1

1. MN = 3.7 cm. , RS = 7.7 cm. , OP = 6 cm.

3. (i) AB = 1.7 cm (ii) AD = 5.8 cm (iii) BE = 5.7 cm

(iv) AF = 10 cm (v) AE = 7.4 cm (vi) BF = 8.3 cm

Exercise 12.2

1. AB = 3.2 cm , CD = 1.8 cm , OP = 2.2 cm , QR = 3 cm

3. (i) AB = CD = 5.5 cm, BD = DA = 1.4 cm

(ii) PQ = QR = RS = SP = 2.3 cm

4. PQ = 3.4 cm , RS = 3.3 cm, PQ > RS.

Exercise 12.3

1. (i) 46 cm (ii) 48 cm (iii) 65 cm

(iv) 72 cm (v) 150 cm

Exercise 12.4

1. (i) 42 cm (ii) 26 cm (iii) 60 cm

2. (i) 8 cm (ii) 48 cm (iii) 20 cm

3. (i) 9.2 cm (ii) 11.4 cm (iii) 9.2 cm